

BULLETIN

OF THE BUREAU OF EDUCATIONAL AND PSYCHOLOGICAL RESEARCH, CALCUTTA

NUMBER 3

JANUARY 1972

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Published by

THE BUREAU OF EDUCATIONAL AND
PSYCHOLOGICAL RESEARCH, CALCUTTA
GOVERNMENT OF WEST BENGAL

25/3 Ballygunge Circular Road

Calcutta-19



PREFACE

In this third Issue of the Bulletin of the Bureau of Educational and Psychological Research, Calcutta, the reader will find an account of the activities of this institution during the period mainly from July to December 1971.

The research papers reported in the present issue are based on findings of inquiries conducted by the members of the Staff of the Bureau into important problems of educational and psychological interest.

Abstracts of papers (not reported earlier) contributed by the members of the Staff of the Bureau and published in different bulletins, journals and monographs have also been incorporated.

R. C. DAS

Principal,

CALCUTTA:
January 1972.

*Bureau of Educational and
Psychological Research, Calcutta*



PREFACE

In the first part of the Bulletin of the Bureau of Educational and Social Statistics, Columbia, the results of the activities of the Bureau during the year ending July 1, 1911, are presented.

The second part of the Bulletin contains the results of the investigations conducted by the Bureau during the year ending July 1, 1911, and the results of the investigations conducted by the Bureau during the year ending July 1, 1910.

The third part of the Bulletin contains the results of the investigations conducted by the Bureau during the year ending July 1, 1911, and the results of the investigations conducted by the Bureau during the year ending July 1, 1910.

H. C. BART

Director

Bureau of Educational and Social Statistics
Columbia, S. C.

Published by the
Bureau of Educational and Social Statistics

ACTIVITIES AT THE BUREAU

Short accounts of the activities at the Bureau during the period from July, 1971 to December, 1971, are given below. Besides these activities, investigations into psychological and educational problems were also conducted by the members of the Staff and the results of these investigations have been reported in this bulletin in the form of short research papers.

1. School Guidance

(a) The Final Career Masters' Certificate Examination, 1971, was held in November 1971. In all, 59 teacher trainees appeared in the Final Examination. Of them fifty-two came out successful, 8 having been placed in the First Class, 43 in the Second Class and 1 having just passed.

The Annual Conference of Career Masters and Convocation are expected to be held in the 3rd week of February 1972.

The part-time training course for Career Masters commenced from the 10th of January 1972. It will continue up to the end of April 1972. Thirty-seven teacher trainees from Calcutta and its neighbouring areas have joined the course.

(b) State School Guidance Programme: At present 829 Career Masters trained by us are organising the School Guidance Programme in different Higher Secondary Schools of West Bengal in co-operation with this Bureau.

About 89 Higher Secondary Schools situated in different parts of West Bengal borrowed different types of Guidance tools and Psychological tests from this Bureau for purposes of allocating their students to different streams. Bureau's psychological tests were applied to more than 8,057 students by them.

Bulletins and Monographs of this Bureau are distributed to different educational institutions, research centres and distinguished educationists regularly.

(c) Co-operation with other authorities: The Educational and Vocational Guidance Section of the Bureau is always working in close co-operation with the National Employment Service Department. Dr. H. C. Basu visited the Employment Exchange Office on several occasions and the State Vocational Guidance Officer of the National Employment Service Department visited this Bureau several times during this period.

This section of the Bureau is also working in co-operation with the Board of Secondary Education, West Bengal.

(d) Further Training of Staff Members: Shri Tapen Banerjee, a member of the Staff of this Bureau, had been to Poona for the period from 1st December 1971 to 18th December 1971 for undergoing training in Research Methodology in Guidance, organised by the Central Bureau of Educational and Vocational Guidance, N.C.E.R.T., New Delhi. Twenty-two experts in Guidance from different parts of India attended this course.

(e) Counselling service: Dr H. C. Basu gave individual counselling to 45 career masters working in various Multipurpose and Higher Secondary Schools, situated in different parts of West Bengal, regarding the methods to be adopted in organising guidance programme in their schools, during the period under review.

Individual educational and vocational guidance and counselling was given to 2 school students by this section.

(f) Published papers contributed by the members of the Staff: The following papers and articles were published in the journals and magazines shown below:

Paper/Article	Author	Journal/Magazine	Year
The child is watching you	Dr R. C. Das	V. G. Y. P.	December, 1971.

(g) Preparation of ad hoc tests: This section of the Bureau and the Evaluation Unit (attached to the Bureau) prepared ad hoc tests of achievement in English, Bengali and Mathematics for Class VIII students, as required by the Director of Public Instruction, West Bengal, to be used for selection of suitable candidates for merit scholarships.

These tests were prepared by Dr R. C. Das, Dr H. C. Basu and Shri K. K. Chatterjee.

2. Guidance of Maladjusted Adolescents

The operational wing of the Adolescent Guidance Centre which had to work at a slowed down speed for some time for practical reasons was reinforced in August 1971. This centre, now takes up a detailed diagnostic investigation of the adolescents referred for emotional and/or educational difficulties. The remedial sessions, however, could not be resumed for the limitation of space, staff and funds. From August to December 1971, four cases have been taken up by this Centre for diagnostic investigation:

Case I, an adolescent girl aged 14 years was a case of mental subnormalcy with somatic and emotional disturbances. The case of mental subnormalcy in this case was congenital relating to the prenatal stage.

Case II, was an adolescent boy aged 13 years unwanted by both parents and referred for certain emotional problems such as acute apathy, indifference to studies, voracious eating and mannerisms such as feary states, headaches, blinking, etc.

Case III, a first born and a very bright adolescent boy aged 16 years with brilliant academic records was brought to us for a sudden onset of aloof and withdrawn behaviour.

Case IV, was another first born adolescent boy, 15 plus, reading in Class VIII and manifesting certain psycho-somatic symptoms along with acute shyness in the presence of others.

All these cases were intensively examined and tested by the AGC team which consisted of Dr R. C. Das, Principal of the Bureau, Dr (Mrs) Maya Mukherji, Assistant Professor, Sm. Gita Sengupta, Lecturer in Psychology and Sm. Bina Sinha and Sm. Tarubala Devi Chakraborty, who functioned as education-scientist and social worker, respectively. The AGC team, after examining the Case from respective standpoints, presented their data in a case conference which was attended by members of the entire Bureau Staff (academic). A diagnostic hypothesis for the difficulties of the case was formulated in the case conference and a "prescription" prepared as remedial suggestions which was explained and handed over to the parents in a parental counselling session arranged by previous appointment. The parents were also advised to contact us every month keeping us informed to what extent the suggestions given by us could be implemented by them and a Follow Up Record Sheet was also given to them for evaluating the month-wise progress, if any, of the adolescent.

Preparation of Research tools: Apart from giving psychotherapeutic guidance to maladjusted adolescents and their parents, this Centre has also evolved some research tools. Details of AGC case study batteries, AGC remedial lessons, self picture card (a projective test), bibliotherapeutic materials were listed in the previous issue of this Bulletin and Monographs published by this Bureau. At present Dr Maya Mukerji has been working on the following:—

- (i) Self-concept rating scale (in Bengali).
- (ii) Deprivation-expectation rating scale (in Bengali).

Talks and Lectures: Dr R. C. Das, Principal of the Bureau, delivered a talk on Juvenile Delinquency at the Institute of Education for Women, Chandernagore, on November 17, 1971.

Dr Maya Mukerji, Assistant Professor of this Bureau, delivered a talk on "How to tackle maladjusted children" at the Victoria Institution on August 7, 1971. This was organised by the Bengal Womens' Education League under the presidentship of Sm. Shanti Datta. Dr Mukerji delivered a special lecture on Case Study at the Teachers' Training College, Purulia, on November 21, 1971.

Other Activities: Dr Maya Mukerji, who is also an honorary part-time lecturer in Education, Calcutta University, delivered lectures on "Mental Hygiene" to the post-graduate students of the University twice a week.

Research: Research publications based on the AGC data from 1961 to 1970 have already been reported in the earlier issue of this bulletin (Vol. I Jan. 1971).

In this bulletin the paper contributed by Dr Maya Mukerji was based on the AGC data.

Publications: The following papers and articles were published in the journals and magazines shown below:—

Paper/article	Author	Journal/Magazine	Year
How to help the educationally retarded child?	Sm. Cita Sen Gupta	V. G. Y. P.	.. August, 1971.

3. Educational Evaluation

(a) **All-India Workshop on Evolving Suitable Criteria for the Evaluation of Primary School Children:** The Department of Pre-Primary and Primary Education of the N.C.E.R.T. had of late taken up a project on Examination Reform at the Primary stage. In line with the modern thinking on evaluation, it was proposed to develop a scheme of built-in-system of the continuous evaluation of the child's growth based on day-to-day records in an All-India workshop of the experts in primary education and evaluation. At the request of the Department of the N.C.E.R.T., New Delhi, the Education Department, Government of West Bengal, deputed Shri K. K. Chatterjee, Evaluation Officer of this Bureau, to attend the workshop organised for the purpose from December 27, 1971 to January 1, 1972 held at Hyderabad.

A brief summary of the proceedings of the workshop is presented below:

The workshop was inaugurated at 11 a.m. on December 27, 1971, by Shri M. V. Rajagopal, Educational Adviser to the Government of Andhra

Pradesh, and Shri V. Ramchandran, Director of Public Instruction, was in the chair. Shri T. R. Deendayal, Director, S.C.E.R.T., welcomed all concerned and observed that it was in fitness of things to hold the workshop at Hyderabad consequent upon the abolition of detention in primary classes in Andhra Pradesh. Shri S. C. Choudhuri, Reader, Department of the Pre-Primary and Primary Education, N.I.E., N.C.E.R.T., explained the need, purpose and procedure of work of the workshop. On December 28, 1971, Professor H. B. Majumdar, Adhyaksha, Vinaya Bhavan, Visva-Bharati, the Director of the workshop addressed the workshop and it was decided to spell out the dimensions of a scheme of thorough assessment at primary level and to indicate the instructional objectives, learning experiences and evaluation procedures of the different curricular areas. The participants engaged themselves in the above tasks in groups and later examined the broad aspects of the scheme in subsequent plenary sessions. The salient points of the recommendations of the workshop are indicated below:

- (1) The workshop accepts on principle the policy of non-detention throughout the primary stage, i.e., upto Class VII/VIII and suggests that the State Governments who are in a position to introduce the reform may do so immediately. However, for the present, those States which are not in a position to implement it upto Class VII/VIII, are expected to introduce the policy at the lower primary stage.
- (2) Evaluation should be an integral part of instruction and as such it would be desirable to test pupil's achievement after completion of each unit. The performance of the pupil in such tests will be utilised by the teacher for the purpose of planning his lessons for the next unit. This will require organisation of each subject in the curriculum into units indicating their objectives in terms of behavioural changes of the pupils.
- (3) At the lower and higher primary stages, four monthly and two half-yearly tests may be conducted to assess pupil's achievement in each class during an academic year. The final annual assessment will be based on the cumulative result obtaining in these tests. The monthly tests will be based on the units covered during the month and the half-yearly tests will be a test of comprehensive type covering all the units done during six months.
- (4) The different techniques of evaluation, namely, written, oral and performance, should be adopted for the assessment of the cognitive aspect of the child's growth and the observational technique for the non-cognitive aspect. It is desirable that in the first two classes, mostly oral and performance tests should constitute the evaluation programme.
- (5) As to the non-cognitive aspect of the pupil's growth a start has to be made. Til favourable conditions are created and dependable tools are evolved, the evaluation will have to be done by systematic observation to a large extent.
- (6) The observable non-cognitive aspects such as, cleanliness, punctuality, participation in different co-curricular activities, hobbies and interests should be included in the progress card along with results in the scholastic areas.

- (7) Special classes should be conducted for the benefit of the weak students.
- (8) There should be a taluka or district level common examination at the end of the higher-primary stage in order to assess the products of the primary education and to ensure their social recognition. The cumulative internal assessment of a pupil should be considered along with his results of the common (external) examination. The weightage to the internal assessment and external examination should be equal (50:50) for total assessment of the pupil.
- (9) Where scholarships are awarded at this stage, a separate examination may be held.
- (10) For improvement of the existing system of examination at the primary level, the following steps have been recommended :
 - (i) A programme of orienting the teachers and inspecting officers in the light of the new scheme should be undertaken at an early date.
 - (ii) The teachers' training programme at the primary level should be so oriented as to acquaint the teacher trainees with the concept, techniques and tools of evaluation.
 - (iii) Strict supervision of the internal assessment work by the inspecting officers, particularly at the lower primary level, should be emphasised. The inspecting staff should be strengthened accordingly.
 - (iv) Production of suitable instructional materials and reorganisation of text book materials into units should be undertaken. Due attention, in this connection, should be paid to the preparation of guide books for teachers, work books for students and necessary related literature.
 - (v) Simple form of record cards for recording the progress of pupil's growth should be developed.
 - (vi) Question papers at the primary level should be set according to the principles of evaluation and include objective-based question items which, in the main, should be short-answer and objective type.
 - (vii) Practical examinations in subjects like craft, music, physical education, art etc., should be held. Besides examinations, the day-to-day performance of the pupil in the practical classes should be taken into account.

On the basis of the broad frame-work so developed, the participants discussed in groups issues related to the following curricular areas and submitted their reports:—

- (i) Language—mother tongue
- (ii) Social studies
- (iii) General Science

- (iv) Mathematics
- (v) Art and creative activities
- (vi) Education in moral and spiritual values
- (vii) Co-curricular activities
- (viii) Desired personality traits

(b) **A study of some Teacher-recipients of the National Award in West Bengal:** For the last few years some elementary and secondary school teachers throughout India are being honoured at the national level for their outstanding service to education in general and school education in particular. The bio-data and personality traits of these teacher-recipients of the National Award, if analysed in a systematic manner, may prove to be a rich source of information in finding out the factors for success as teacher and organiser in the field of education. Keeping this end in view, a team of the Bureau's Staff, Shri K. K. Chatterjee, Sm. S. Datta and Sm. G. Chatterjee, collected preliminary information of some such teachers of West Bengal as were so honoured during the period from 1958-59 to 1968-69 and the total number of such cases was sixty-five.

As the information collected was inadequate for study, a decision was taken to develop a detailed questionnaire to collect extensive bio-data of these teachers and also to find out a suitable personality inventory for objective assessment of some of their personality traits.

Dr R. C. Das, Principal, and Shri K. K. Chatterjee, Evaluation Officer, of this Bureau developed a detailed questionnaire for the purpose which includes, among others, the following items, viz.—

- (i) length of teaching experience in elementary and secondary school;
- (ii) academic qualification;
- (iii) professional qualification;
- (iv) training in specialised area, such as, physical education, bratachari, music, craft, painting, N.C.C., Girls' Guide, etc.;
- (v) competence in teaching different school subjects;
- (vi) participation and role played in social work/activities;
- (vii) leisure-time activities/pursuits in order of liking;
- (viii) names of three persons regarded as ideal in life and their most impressive personality traits (in order of degree);
- (ix) three problems in the field of education in West Bengal held to be most important;
- (x) suggestions for solution of these problems;
- (xi) specific qualities of personality deemed essential for an ideal teacher (in order of priority);
- (xii) a short auto-biographical sketch with specific reference to such qualities of personality as helped the teacher to achieve success in the profession.

For an objective assessment of some of the personality traits of these teachers, viz. (i) neurotic tendency, (ii) self-sufficiency, (iii) introversion and (iv) dominance, the Personality Inventory developed by Bernreuter seemed to be adequate and, therefore, the Bengali version of the short form of the Bernreuter Personality Inventory, consisting of 30 items, was selected for this study. The Questionnaire and the Personality Inventory were sent to all the sixty-

five teacher-recipients explaining to them the purpose of the study. Twenty-four of them responded, of whom twenty-one filled up the Personality Inventory. The data obtained through the questionnaire and the inventory are being analysed. Shri K. K. Chatterjee has contributed a paper on a particular aspect of the study entitled "A Study of Personality Traits of a Group of National Awardee Teachers by the Bernreuter Personality Inventory" in this issue of the Bulletin.

(c) **Other Activities.**—(i) **With the West Bengal Board of Secondary Education.**—Dr R. C. Das, Principal, and Shri K. K. Chatterjee, Evaluation Officer, of this Bureau attended a meeting at the Board Office with Principal D. Mahanta of David Hare Training College and discussed with the President and the Secretary of the Board different issues in connection with the organisation of a seminar on Examination Reform to be held under the auspices of the Board in near future. The different areas of the reform to be discussed in the seminar were spelt out and Shri K. K. Chatterjee and Shri A. C. Chattopadhyay, the Secretary of the Board, were requested to prepare working papers on different areas of the reform under consideration. Accordingly, several working papers, have already been drafted to be finalised at an early date.

(ii) **Panel discussion on Examination Reform organised by the Calcutta Station, All India Radio.**—Shri K. K. Chatterjee along with Dr S. Sen, Vice-Chancellor, Calcutta University, Professor D. Mahanta, Principal, David Hare Training College, and Shri Bikash Sen, Headmaster, Sukchar K. C. Vidyayatan, Sukchar, 24-Parganas, took part in a panel discussion on the topic, "Bartaman Pariksha Byabasthar Bikalpa Ki" (alternatives of the present examination system) which was on the air on the 15th November 1971 from the Calcutta Station, All India Radio.

(iii) **Professional advice to different organisations and institutions and supply of evaluation tools.**—During the period from July to December 1971, the Evaluation Unit, attached to this Bureau, was approached by the following organisations and institutions for technical help in matters of improving the present technique of examination. The last named institution was supplied with ad-hoc tests of achievement in English, Bengali, Mathematics and Physical and Biological Sciences, besides an ad-hoc test of General Intelligence for the students of Class VIII prepared by Dr R. C. Das, Shri K. K. Chatterjee and Sm. S. Datta:—

- (a) West Bengal Headmasters' Association
- (b) All Bengal Teachers' Association
- (c) Manbhum Victoria Institution, Purulia

(iv) **Administration of the Attitude Scale on Teaching Profession.**—Sm. S. Datta, Senior Technical Assistant of the Evaluation Unit, administered the Attitude Scale on Teaching Profession developed at this Bureau to two groups of students. Some of them belonged to a Secondary Teachers' Training College and the others to the Department of Psychology in a University. The data were compared and the study is published in the present issue of the Bulletin.

(v) **Career Masters' Certificate Examination, 1971.**—The Evaluation Officer and the Senior Technical Assistant of the Evaluation Unit along with other members of the Staff of the Bureau took part in the organisation of the Examination.

(vi) **Advisory Service to the Extension Services Department or Training Colleges.**—Dr R. C. Das, Principal and Shri K. K. Chatterjee, Evaluation Officer, attended two meetings of the Advisory Committee of the Extension Services Department of David Hare Training College on 12-7-1971 and 30-8-1971 on the programmes conducted by the Department.

(vii) **Publication.**—Shri K. K. Chatterjee contributed an article on the topic, "Bartaman Pariksha Sankat Prasanga". (On the crisis of the Present Examination System) in an educational journal, Siksha-O-Sabhyata Vol. I, No. 2, August-September, 1971.

4. Psychometry

A. (a) **Tests.**—**Test for commercial ability.**—Prepared by Shri T. Banerjee. —This test has been constructed and all attempts are being made for its preliminary application in some schools.

(b) (i) **The Pulley and Belt Test.**—Prepared by Dr H. C. Basu.—This test has been administered in two schools by way of preliminary application. It will be applied to two more groups of students shortly. After that statistical calculations of the obtained data will be performed.

(ii) **Block Test.**—Prepared by Dr H. C. Basu.—This test has also been applied to the students of two Calcutta schools. After administering the test to another group of 50 students of schools situated in areas far away from Calcutta the test scores will be statistically treated.

(iii) **Commercial Aptitude Test.**—Prepared by Dr H. C. Basu.—This test has been applied in one school of Birbhum district and in one school of Nadia district. Now it will be applied in two schools of Calcutta. Then the obtained data will be statistically dealt with.

(c) **Agricultural Aptitude Test.**—Prepared by Dr R. C. Das, Shri K. K. Chatterjee and Sm. Geeta Chatterjee.—It was reported in the previous issue (No. 2) of the Bulletin that 191 items (one test and one inventory) had been constructed on the basis of general information, common observation, and expected achievement in General Science, all having bearing on the Agriculture Course, and on biographical factors of the pupils. They were administered on the pupils of Class IX of the agriculture stream of four higher secondary schools of West Bengal. The responses of sixty pupils to each test-item were analysed by Sm. Geeta Chatterjee and Sm. Manju Chakraborty of this Bureau with a view to developing the final forms of the Test. In all, 143 items of the Aptitude Test form were selected on the basis of their difficulty values and discriminating indices and also on the basis of their content validity. The investigators suggested that the selected items should be rearranged in order of difficulty. The pupils' responses on the seven items of the Inventory on the background information were also analysed and all the items were retained on the basis of statistical analysis (for fuller discussion, vide the paper contributed by the investigators in this issue of the Bulletin). A suggestion was made to include more items in the Inventory. The investigators further stressed the need for developing a Personality Inventory Form to assess the various traits of personality required for successful completion of agricultural courses. Finally, it was decided to include all the three evaluation tools—the aptitude test, the pupils' inventory and the personality inventory form—in the Test Batteries for the selection of pupils for agricultural courses at the end of Class VIII and also Class X.

B. **Preparation of Scales and Questionnaires.**—(a) A questionnaire for library employees was developed by Shri S. K. Bagchi, Shri K. K. Chatterjee, and Dr R. C. Das. This questionnaire has been administered to sixty library employees of Calcutta and the findings of the inquiry have been reported by Shri Bagchi in this Bulletin.

(b) A questionnaire for assessment of academic motivation was developed by Shri T. Banerjee and Dr R. C. Das. Items, mostly collected from different sources, were modified to suit our conditions. It will be shortly administered to student groups of some secondary schools.

(c) An Aptitude Test Scale for measuring the Teaching Ability of Teacher Trainees and giving guidance to University graduates who intend to join the teaching profession in future was prepared by Dr H. C. Basu.

This Test Scale has been prepared and applied to 100 teacher trainees of the David Hare Training College, Calcutta. Results of the first application of this Aptitude Test Scale have been reported by Dr Basu in this Bulletin.

(d) A questionnaire for ascertaining pupils' opinion on School Guidance Service in West Bengal was prepared by Sm. Bandana Das Gupta. The questionnaire has been administered to 280 pupils and the findings have been reported by Sm. Das Gupta in this Bulletin.

5. Publications

The second issue of the Bulletin of the Bureau of Educational and Psychological Research, Calcutta, was published in July 1971. It contains (i) reports of activities at the Bureau mainly during the period from January to July 1971; (ii) research papers based on the findings of inquiries into problems of educational and psychological significance; and (iii) abstracts of published papers by members of the Staff of the Bureau.

Out of the remaining 156 copies of the first bulletin 19 copies were distributed during this period. We have so far received only 475 copies of the second bulletin out of which 331 copies have been issued out to various institutions and persons interested in education and psychology.

6. Library

During the period under review 11 additional books were purchased for the Bureau library. This brought the total number of books to 2,295 from 2,284.

One more research scholar was included in the readers' list during this period.

7. Laboratory

Copies of Test C of the Bureau were supplied to the teachers' training colleges at Purulia and Malda to be used by them in training their students in test administration and also to Lake School for Girls to be used for research purposes.

A cyclostyled copy of the Bernreuter Personality Inventory (abridged Bengali adaptation) was issued to a lecturer of the Department of Psychology, Girls' College, Howrah, who intends to use the same in a study undertaken by her.

PUPILS' OPINION ON SCHOOL GUIDANCE SERVICE IN WEST BENGAL

Bandana Dasgupta

Introduction.—The educators of New India felt the necessity of a planned society and, therefore, strongly recommended planned education for youths, the most precious asset of the nation, through scientific guidance. As per recommendations of the Secondary Education Commission (1952), School Guidance Service began in West Bengal in 1957. Since then, guidance is being provided every year to about 10,000 pupils on the average.

The object of School Guidance is to find out the area of pupil's fitness and to provide guidance most effectively through co-operative endeavours of enlightened pupils, understanding parents and experienced teachers.

The main function of the Career Master, entrusted with the work of Guidance Service in School, is to allocate pupils to different streams of the diversified course according to their suitability. Aptitude and Attainment tests, Interest Inventories for pupils and guardians and such other tools, required for this purpose, are supplied to them by the Bureau. Besides allocation, guidance workers have to organise also the following:—

- (i) Hobby Clubs; (ii) Career Talks; (iii) Career Conferences; (iv) Occupational Information Library; (v) School Guidance Corner; (vi) Radio talks and Film shows; (vii) News album; (viii) Career Magazines; (ix) Cumulative Record Cards; (x) Parent Teacher Association; (xi) School Guidance Committee; (xii) Guidance Exhibition; and (xiii) Work visits and Excursions, etc.

Aim.—The present study aims at an objective ascertainment of the opinions of a sample of pupils of West Bengal regarding different aspects of Guidance Service in their respective schools.

Sample.—The sample consisted of 280 (age range 14-20) pupils of Classes X and XI of 16 Multipurpose Schools in which Guidance Service had been introduced for more than five years. The schools are situated in 9 districts of West Bengal, viz. Bankura, Birbhum, Burdwan, Calcutta, Hooghly, Howrah, Midnapore, Nadia and 24-Parganas. The sample, consisting of 150 boys and 130 girls, belonged to seven different streams, viz., Science, Humanities, Commerce, Technical, Agriculture, Home Science and Fine Arts.

Method.—A questionnaire containing 31 statements (vide Appendix) was administered to the subjects who were asked to react on a 3-point scale to each of these statements regarding (i) attitude of the following agencies towards Guidance Service in the schools—society, guardians; other persons, connected with Guidance Service in the school; Headmaster/Headmistress; teachers; Career Masters and the pupils themselves, (ii) Organization and usefulness of (a) Extra-curricular activities; (b) Hobby clubs; (c) Guidance corner; (d) Career talks; (e) Career excursions; (f) Exhibition; (g) Film shows; (iii) Scope for disseminating occupational information; (iv) Time for Guidance work at the disposal of the Career Master; (v) Usefulness of Guidance Service in solving educational problems; (vi) Specific personality traits of an ideal Career Master; and (vii) Relationship between Career Master and pupils.

The 31st statement was of free-response type which required the subject to name six specific personality traits which in his/her opinion, an ideal Career Master should possess.

Results.—In Tables No. 1 and No. 2 "a" indicates complete agreement, "b" indicates partial agreement and "c" indicates complete disagreement of the subjects in respect to the statements concerned, expressed in terms of percentages. For the sake of precision an attempt has been made to compare the Calcutta pupils with outside pupils and the boys with the girls.

TABLE No. 1.

Agency	Statement No.	Total (Per cent.)			Calcutta pupils (Per cent.)			Outside pupils (Per cent.)			Boys (Per cent.)			Girls (Per cent.)			
		a	b	c	a	b	c	a	b	c	a	b	c	a	b	c	
Society	..	18	42.5	42.5	15	51.85	43.21	4.94	38.69	42.22	19.09	37.33	49.33	13.33	48.46	34.62	16.92
Guardians	..	4	79.65	20	0.35	85.19	14.81	0	77.39	22.11	0.05	80.67	18.67	0.67	78.46	21.54	0
		8	68.57	30	1.43	69.14	30.86	0	68.34	29.65	2.01	72.67	25.33	2	63.08	36.15	0.77
Other persons, connected with Guidance Service in the schools.		30	75.36	22.14	2.5	60.5	33.33	6.17	81.41	17.59	1	72	24.67	3.33	79.23	19.23	1.54
Head Teachers..	..	15	78.21	20	1.79	81.48	18.52	0	76.89	20.60	2.51	73.33	24	2.67	83.85	15.38	0.77
Other teachers	..	21	76.43	22.5	1.07	77.77	22.22	0	75.89	22.61	1.5	70.67	27.33	2	83.08	16.92	0
Career Masters	..	9	57.14	37.86	5	60.49	39.51	0	55.78	37.19	7.03	48.67	45.33	6	66.92	29.23	3.85
		10	53.36	39.28	5.36	58.03	38.27	3.70	54.27	39.70	6.03	58.67	35.33	6	51.54	43.84	4.62
		13	56.78	31.43	11.79	58.03	34.56	7.41	56.28	30.15	13.57	50.67	35.33	14	63.85	26.92	9.23
Pupils	..	1	91.79	7.86	.35	97.52	2.48	0	89.45	10.05	0.5	89.33	10	0.67	94.62	5.38	0
		2	85.36	14.29	.35	90.12	9.88	0	83.42	16.08	0.5	81.33	18	0.67	90	10.00	0
		3	76.07	21.43	2.5	83.95	16.05	0	72.86	23.62	3.52	67.33	28	4.67	86.15	13.85	0
		7	27.85	41.44	30.71	24.69	45.68	29.63	34.17	34.67	31.16	33.33	29.33	37.33	21.54	55.38	23.08
		14	70	27.14	2.86	62.99	33.33	3.70	72.86	24.63	2.51	68	29.33	2.67	72.30	24.62	3.08
		16	87.15	10.71	2.14	91.36	8.65	0	85.43	11.56	3.01	84	12	4	90.77	9.23	0
		17	86.98	12.16	1.86	83.95	13.58	2.47	86.94	11.56	1.5	80.67	16	3.33	92.31	7.69	0
		20	62.85	31.79	5.36	67.90	30.87	1.23	60.80	32.16	7.04	54	35.67	9.33	73.08	26.15	0.77

The personality traits which, in the opinion of the pupils, an ideal career master should possess are given in order of frequency in Table No. 5 below:

TABLE No. 5

Traits		Per cent.	Traits		Per cent.
1. Sympathetic, cordial, affectionate, congenial, generous, forgiving, kind, benevolent.		53.92	18. Skilful	..	6.79
2. Unbiased, just, considerate, reasonable, unselfish.		47.84	19. Laborious	..	6.43
3. Conversant with the requirements of different occupations.		28.57	20. Confident	..	5.36
4. Zealous, active, enthusiastic	..	22.71	21. Observant, inquisitive	..	4.29
5. Painstaking, tolerant, persevering, restrained		22.14	22. Highly educated	..	3.93
6. Resourceful, thoughtful, talented..	..	22.01	23. Co-operative	..	3.57
7. Able to maintain good relationship with the students, social.	..	20.71	24. Idealist	..	3.57
8. Well-behaved, amiable	..	20.36	25. Careful	..	3.21
9. Experienced	..	13.93	26. Alert	..	3.21
10. Conversant with Psychology	..	13.93	27. Punctual	..	2.86
11. Prompt	..	13.93	28. High in morals	..	2.86
12. Dutiful, law-abiding	..	13.57	29. Healthy	..	2.14
13. Responsible	..	12.05	30. Intelligent	..	2.05
14. Prudent	..	11.89	31. Insightful	..	1.43
15. Honest, truthful	..	11.11	32. Good Orator	..	1.43
16. Firm	..	8.21	33. Patriotic	..	1.07
17. Intimate with the pupils	..	7.86	34. Progressive	..	0.71
			35. Sincere	..	0.35
			36. Methodical	..	0.35

Discussion.—The figures in Tables 1 and 2 show that the School Guidance Service needs more social acceptance.

79.65 per cent. of the pupils agreed that their guardians regard Guidance Service to be highly important. Here the percentages are 85.19 and 77.39 in cases of Calcutta pupils and outside pupils, respectively.

68.57 per cent. of the sample indicated complete agreement to the effect that their guardians are ready to accept the instructions of the career master, the percentages of boys so saying being higher than that of girls.

75.36 per cent. of the pupils agreed that persons, connected with Guidance Service in schools, should be much more alert. Girls' schools, in comparison to boys' schools, reportedly need much more alertness in this regard. 78.21 per cent. of the pupils indicated that the Head teachers of their respective schools are quite favourably inclined to Guidance Service. 83.85 per cent. of girls held this view whereas the percentages of boys was 73.33 in this regard.

57.14 per cent. of the pupils completely agreed that the career masters were ready to help the pupils in solving their problems. 66.92 per cent. of the girls and 48.67 per cent. of the boys expressed this view.

76.43 per cent. of the pupils felt that the teachers, besides the career master, attached much importance to the Guidance Service programme. The attitude of the teachers of girls' schools is reported to be more satisfactory than that of teachers of boys' schools.

53.36 per cent. of the sample were of the opinion that the career masters are very much prompt in disseminating occupational information. 39.28 per cent. showed only partial agreement. Percentage of girls, so reporting, was larger than that of boys.

56.78 per cent. of the pupils indicated that their schools were very much particular in keeping contact with their guardians regarding their guidance. Here 31.43 per cent. expressed partial agreement.

There was almost unanimous agreement (91.79 per cent.) that the work of a career master is highly important. 85.36 per cent. of the total sample stated that the pupils have great regard for their career masters.

76.07 per cent. and 43 per cent. of the pupils showed complete and partial agreement respectively to the effect that the pupils were really benefited by proper guidance. 27.85 per cent., 41.44 per cent. and 30.71 per cent. expressed complete agreement, partial agreement and complete disagreement on the issue that the pupils were afraid of their career masters.

87.15 per cent. of the sample indicated that the stream to which they were allocated suited them best. In this respect the percentage of Calcutta pupils was higher than that of outside pupils. Same was the case with the girls in comparison with the boys. 86.98 per cent. of the pupils were proud of their own institution. 62.85 per cent. of the sample stated that their friends strongly support the necessity of Guidance Service; 31.79 per cent. expressed partial agreement.

47.14 per cent. of the pupils agreed completely that they had enough scope for extra-curricular activities in line with their interests and potentialities. 66.15 per cent. of the girls showed complete agreement, whereas the corresponding percentage of boys was 30.67.

Table No. 2 furnishes the subjects' opinion regarding organisation and usefulness of (a) Extra-curricular activities, (b) Hobby clubs, (c) Guidance Corner, (d) Career Talk, (e) Career Excursions, (f) Exhibitions and (g) Filmshows.

TABLE 2

Items.	Statement No.	Total (Per cent.)			Calcutta pupils (Per cent.)			Outside pupils (Per cent.)			Boys (Per cent.)			Girls (Per cent.)		
		a	b	c	a	b	c	a	b	c	a	b	c	a	b	c
Extra-curricular activity ..	19	47.14	36.07	16.79	41.98	46.91	11.11	49.25	31.66	19.09	30.67	47.33	22	66.15	23.00	10.77
Hobby club ..	11	28.93	27.86	43.21	40.74	25.93	33.33	24.12	23.64	47.24	18	26	56	41.54	30	28.46
Guidance Corner	26	33.92	31.79	34.29	44.44	24.69	30.87	29.65	34.67	35.68	30.67	24	45.33	37.69	40.77	21.54
Career Excursion	12	37.5	41.79	20.71	44.44	39.51	16.05	34.67	42.71	22.62	32.67	36.67	30.67	48.08	47.69	9.23
Career Talk ..	23	13.21	38.22	48.57	13.68	49.38	37.01	13.67	33.67	53.26	10	30.67	59.33	16.92	46.93	36.15
Exhibition ..	28	46.43	49.64	3.93	45.68	49.38	4.94	46.74	49.75	3.51	48	48	4	44.61	51.54	3.85
Filmshow ..	29	47.14	43.93	8.93	41.98	51.85	6.17	49.25	40.70	10.05	41.33	45.33	13.33	53.85	42.30	3.85
	24	9.26	28.57	62.14	13.58	24.69	61.73	7.54	30.15	62.31	7.33	24	68.07	11.54	38.85	58.61

Table No. 3 shows the subjects' opinion on (a) time at the disposal of the Career Master, (b) Usefulness of the Guidance Service in solving educational problems, (c) specific personality traits of an ideal Career Master and (d) Relationship between Career Masters and pupils.

TABLE 3

Items.	Statement No.	Total (Per cent.)			Calcutta pupils (Per cent.)			Outside pupils (Per cent.)			Boys (Per cent.)			Girls (Per cent.)		
		a	b	c	a	b	c	a	b	c	a	b	c	a	b	c
a ..	..	53.57	44.29	2.14	48.15	50.62	1.23	55.78	41.71	2.51	51.33	45.33	3.33	56.15	43.08	0.77
b ..	..	46.07	49.64	4.29	43.21	55.56	1.23	47.24	47.24	5.52	46	48	6	46.15	51.54	2.31
c ..	..	49.29	41.08	9.63	56.79	39.51	3.70	46.24	41.71	12.05	39.33	47.33	13.33	60.77	33.85	5.38
d ..	..	89.64	7.5	2.86	85.18	9.88	4.94	91.46	6.53	2.01	86.67	8	5.33	93.03	6.92	0.01
d ..	..	81.79	15	3.21	80.25	17.28	2.47	82.42	14.07	3.51	78	18	4	86.15	11.54	2.30

The standard partial regression coefficient or

$$\beta_{12.3} = .544$$

$$\beta_{13.2} = .177$$

The partial regression co-efficient:

$$b_{12.3} = 3.65$$

$$b_{13.2} = 2.94$$

Hence the complete regression equation will then read:

$$X'_1 = 294.7 + 3.65X_2 + 2.94X_3$$

where X'_1 stands for the predicated value of the achievement.

The regression coefficients 3.65 ($b_{12.3}$) indicates relative weightage of intelligence (X_2) in determining achievement in terms of score units and 2.94 ($b_{13.2}$) indicates the relative contribution of W+percentage in determining achievement also in terms of score units. We may say that for every unit increase in intelligence science achievement is increasing 3.65 units and for every unit increase in W+percentage achievement is increasing 2.94 units. From this regression equation we can predict the science achievement of a student at the final higher secondary examination from the knowledge of scores on these two variables.

The coefficient of multiple correlation .61 indicates that when the probable score of achievement each student in our group will receive has been predicted from the regression equation the correlation between the predicted score and earned score will be .61. With three variables our R is significant beyond 1% level of confidence. The standard error of our R is .03. So our R cannot very well be more than .08 from the population value of R (.08 being about 2.58 times σ_D). As a multiple R computed from a sample always tends to be somewhat inflated with respect to the population R a correction formula is applied to our multiple R. The corrected R or R_c is .60 whereas the obtained R is .61. So our correction is negligible. From the β coefficients and the respective correlations we see that .32 is the contribution to science achievement by intelligence and .06 by W+percentage. In terms of percentages these are 32 and 6 respectively. We can say that intelligence, with what it has in common with W+percentage held constant, contributes about 32% to science achievement and W+percentage, apart from what portion of it is related to intelligence, contributes about 6% to science achievement. We cannot take these as final or absolute, for there are other factors contributing to science achievement that have not been similarly eliminated from consideration. But it is of much value to be able to compare contributions of variables to outcomes in this manner.

The significant relationship between the highest levels of W responses with both intelligence and achievement, as observed in the present study, indicates that W+responses (%) can offer valid estimates of intellectual level and science achievement. This fact lends support to our hypothesis.

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43.21 per cent. of the sample indicated that they had no scope for activities in line with their interest in the hobby club, whereas 27.86 per cent. and 28.93 per cent. expressed partial and complete agreement respectively to the effect that they had such scope. In this respect, Calcutta schools appear to be in a more advantageous position than the schools situated in other districts. Same is the case with the girls' schools in comparison to the boys'. It may be noted in this connection that 66.75 per cent. of the career masters, studied previously, stated that they had no scope to conduct hobby clubs properly (Dasgupta, July, 1971).

As regards the statement that hobby club activities are conducive to academic work, 33.92 per cent., 31.79 per cent. and 34.21 per cent. of the pupils indicated complete agreement, partial agreement and complete disagreement, respectively.

37.05 per cent. of the pupils completely agreed that the Guidance corners are conducted properly in their schools. 41.79 per cent. and 20.71 per cent. indicated partial and complete disagreement, respectively. 44.44 per cent. of the Calcutta pupils indicated complete agreement, whereas the percentage of outside students turned out to be 34.67 per cent. 30.67 per cent. of the boys and only 9.3 per cent. of the girls expressed complete disagreement on this account. 46.43 per cent. of the sample felt that they were really benefited by career talks, whereas 49.64 per cent. expressed partial agreement on this point. Here it is worth mentioning that only 10 per cent. of the career masters, studied previously, stated that they got enough scope to organise career talks properly (Dasgupta, July, 1971).

13.21 per cent., 38.22 per cent. and 48.57 per cent. indicated complete and partial agreement and complete disagreement respectively as to having adequate scope for vocational excursions. 75 per cent. of the career masters, studied previously, were in the opinion that it was not possible for them to organise such excursions (Dasgupta, July, 1971).

47.14 per cent. of the sample indicated that their schools are very much zealous in disseminating information through exhibitions. 43.93 per cent. partially agreed to it. A more favourable attitude was expressed by the outside pupils than by the Calcutta pupils, and by the girls than by the boys.

The percentages of responses of the pupils regarding availability of scope to attend film shows for occupational information were found to be 9.26 per cent., 28.57 per cent. and 62.14 per cent. indicating complete agreement, partial agreement and complete disagreement, respectively.

53.57 per cent. of the pupils indicated that the career masters can spend enough time to solve their problems. 44.29 per cent. indicated partial agreement. 48.15 per cent. and 50.26 per cent. of the Calcutta pupils expressed complete and partial agreement respectively, whereas 55.78 per cent. and 41.71 per cent. of the outside pupils showed respectively complete and partial agreement on this issue. 65 per cent. of the career masters, studied previously, indicated that the time scheduled for career masters for Guidance work was made available to them only to some extent (Dasgupta, July, 1971).

46.07 per cent. of the sample felt that many of the educational problems can be solved to a great extent by effective Guidance service and 49.29 per cent. stated that effective Guidance service was really helpful in solving their problems.

There was almost complete agreement that an ideal career master should possess some specific personality traits. 81.79 per cent. of the total sample felt that the relationship between them and their career master was very satisfactory. In comparison with the boys, the girls responded more favourably in this regard.

53.92 per cent. of the total group felt that an ideal career master should have a sympathetic attitude for the students for satisfactory performance of his duties. This was also observed by Hugh Lytton, Iris R. Webster and Paul Kline in their study on "Teachers' Attitude to Guidance and Counselling".

Appendix

- (i) The work of a career master is important.
- (ii) The pupils have regard for the career master.
- (iii) The pupils are benefited by Guidance service.
- (iv) My guardian regards Guidance service to be important.
- (v) Many of the present day problems can be solved in great measures by successful implementation of the School Guidance Programme.
- (vi) The career master can spend enough time to help me in solving my problems.
- (vii) I am afraid of the career master.
- (viii) My guardian is ready to accept the instructions of the career master.
- (ix) The career master of my school is ready to help me in solving my problems.
- (x) Our career master is prompt in disseminating occupational information.
- (xi) We (pupils) have scope for activities in line with our interests in the hobby club.
- (xii) Guidance corner is conducted properly in our school.
- (xiii) Our school is particular in keeping contact with our guardians regarding our guidance.
- (xiv) We feel enthused by discussions held between us and our career master.
- (xv) The Head teacher of our school is quite favourably inclined to Guidance service.
- (xvi) The stream to which I have been allocated suits me best.
- (xvii) I am proud of my Institution.
- (xviii) Society considers Guidance service to be important.
- (xix) In school, I get scope for extra-curricular activities in line with my interest.
- (xx) My friends deem Guidance service to be necessary.
- (xxi) The teachers, other than the career master, of our school attach much importance to Guidance service.
- (xxii) The relationship between us and our career master is satisfactory.
- (xxiii) We get scope to visit industrial factories and commercial firms.
- (xxiv) We get scope in the school to collect occupational information through film shows.
- (xxv) An ideal career master should possess a number of special qualities.

(xxvi) Hobby club activities are conducive to academic work.

(xxvii) Effective Guidance Service is helpful in solving my educational problems.

(xxviii) I have been benefited by career talks.

(xxix) My school is zealous in disseminating occupational information through exhibitions.

(xxx) Other persons, connected with Guidance Service in the schools, should be much more alert.

(xxxi) What, in your opinion, should be the special qualities of an ideal career master? Name six such qualities.

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RORSCHACH WHOLE RESPONSES, INTELLIGENCE AND ACHIEVEMENT IN SCIENCE

T. Banerjee

Relations between Rorschach indices and intellectual functioning have been the focus of considerable empirical research. The whole response (W) has a longstanding reputation for its bearing on intelligence. Rorschach writes, "..... the number of W responses is to be considered primarily as an indicator of the energy of associative activity, dependent on a dispositional set of the subject. Frequently the number of W's is an indicator of conscious or unconscious "willing" in the direction of achieving complicated performance, such as abstraction."

Rorschach himself noted (1921) that the protocols of intelligent subjects were characterised by some factors, one of which was the presence of a good number of W responses. He observed that W response of high form level characterised the records of intelligent persons of a theoretical, abstracting, organising bent. Thus while it is fairly well agreed in the Rorschach theoretical literature that the whole (W) responses reflect the "abstracting, surveying and integrating abilities of the subject", research studies have followed the pattern of solely measuring the number and/or percentage of W responses and correlating them with intelligence scores. In an earlier study (Blatt and Allison, 1963), the authors demonstrated that the puzzling and contradictory findings in this research stem from both the failure to differentiate type and quality of W responses and due to the restricted range of intelligence in the samples used for validation. In a sample of male graduate students no relationships were found between intelligence, as measured by Ravens Progressive Matrices (Advanced Form) and either number or percentage of Rorschach W responses. However, when cognitively complex and accurately articulated W responses were differentiated from other types of W responses (Friedman, 1953), a highly significant positive relationship was found between W production and problem solving efficiency. This finding clearly showed the importance of distinguishing among W responses when attempting to validate the process underlying them.

In one study of the relationship between Rorschach whole responses and intelligence Allison and Blatt correlated the percentages of different qualities of W responses, viz., W-(poor), W+(good), etc., with intelligence as measured by WAIS. They found a correlation of $-.08$ between total W percentage and intelligence, a correlation of $-.24$ between percentage of W-response and intelligence and a correlation of $.57$ between W+percentage and intelligence. Their subjects were 40 adults with average age 28-6 years and 26-9 years for women ($N=29$) and men ($N=11$), respectively. In another study of relationship between W+responses and intelligence using WISC in a sample of 60 pupils with age range 8-14 years (Mean 12.8 years), Marsden observed a significant correlation of $.33$ with the full scale, $.29$ with the verbal scale and $.28$ with the performance scale I.Q.

Aim

The purpose of the present study is to investigate more systematically into the relationship of the Rorschach whole responses to intelligence and science achievement by examining the qualitative features of the W responses over a broad range of intelligence and achievement level. It is hypothesised that a significant positive relationship will emerge when qualitative features of the W responses are considered. In other words, it is the capacity to produce more complex and integrated W's which should relate to both intelligence and achieve-

ment in science. Another central effort of the study is to determine the relative contributions of intelligence and whole responses towards science achievement so that a prediction of achievement may be made from the knowledge of scores of these two variables.

Sample

The previous two main studies on this area were limited to small samples with Ns 40 and 60 respectively. The age group covered by these studies were adults (Mean age 28 years) and the age group of 8—14 (Mean 12.8 years) respectively. The sample of the present study consisted of a larger number of 300 students (boys 280 and girls 20) of Class XI, with modal age 16 years 8 months, who ultimately passed the Higher Secondary Examination in 1967 and 1968.

Procedure

The three tests, viz., Numerical Ability, Abstract Reasoning and Verbal Reasoning (West Bengal Adaptation) were administered to these groups of students. A fair estimate of general intelligence of each was obtained by adding the scores on these three tests.

The Rorschach group method was also applied to the groups by administering the tests to small groups of 30 at a time by means of slide projector.

The criterion of science achievement was the total marks obtained by these science students at the final Higher Secondary Examination of the Board of Secondary Education, West Bengal.

The W (whole) responses were classified into three categories according to their quality. The assessment was based on both levels of cognitive complexity and degree and accuracy of adherence to reality (F+ or F-).

The different qualities of W response used in this study were:—

“W- : A response in which the content produced requires a definite specific form which, however, is not provided by the blot. Here the fit is a poor one.

W+ : A response in which all the discrete portions of the blot are combined into a unifying whole in which the specific form implied in the content matches the blot.

W: A response which is in between W- and W+. Here the specific form implied in the content more or less matches the blot, but the fit is not so accurate as in the case of W+.”

A control for productivity was made by dividing each of the several categories of W response by R, the total number of response and converting it to a percentage. These three percentages of the different qualities of W response, viz., W% obtained by adding all the three qualities of W response and dividing the total by R, W+% obtained by dividing the number of W+ responses by R and converting the resultant to a percentage, and W-% obtained in a like manner, were correlated to intelligence and achievement respectively by using the formula of finding the coefficient of correlation from original measurements. Among the different categories of whole responses the W+ percentage correlated significantly and positively with both intelligence and achievement. In order to find out the relative weightage of intelligence and W+ percentage in the determination of science achievement

PREDICTING SCHOLASTIC ACHIEVEMENT OF CLASS XI STUDENTS

Bina Sinha

An analysis of three predictive measures, viz., general mental ability, study habit and achievement motivation, was utilised to derive a regression equation for the prediction of student's scholastic achievement. The multiple-regression method was employed to determine the prediction. The partial correlation method was also employed to determine the effect of each of these measures on the others. Data were obtained from 52 Class XI students of the Ballygunge Government High School, Calcutta.

Failure in school examinations is very common these days. Experienced parents and practical teachers face the problem off and on and realise that many of the students' problems might not crop up if some kind of effective bond towards their school achievement could be established. Now what are the pertinent factors or variables that contribute to scholastic achievement? It has been hypothesised that some of these predictor variables are general mental ability, study habit and achievement motivation.

Purpose.—The specific purpose of this investigation is to predict a student's academic or scholastic achievement from the above three variables known in advance.

The problem here is to ascertain the relative degrees of importance or relative weightages with which these components enter in the determination of the criterion, i.e., scholastic achievement. In other words, the purpose here is to determine the maximum accuracy with which we could predict scholastic achievement by combining the above-quoted three predictive factors, each with its best weight.

Sample.—Subjects of this study were all the Class XI boys (N=52) of the session 1971-72 belonging to the Ballygunge Government High School, Calcutta, available at the time of the test. Table I gives a descriptive information about the sample.

TABLE I

Class	Streams			Total N	Mean age	Age range
	Sc.	Hum.	Tech.			
XI	40	5	7	52	16.13	14-17

Terminology used.—The terms used to connote the predictive measures and the criterion employed in this study are defined below:

(i) **Scholastic Achievement**—This was the grand total of the annual examination marks earned by a student during the session.

(ii) **General Mental Ability**—This was measured by the Differential Aptitude Tests adapted and standardised by the Bureau of Educational and Psychological Research, Calcutta, which again consists of three subtests, viz., numerical reasoning, abstract reasoning, and verbal reasoning. The raw score was expressed in terms of normalised T-score where mean was 100 and S.D.=15.

(iii) Study Habit—As no suitable study habit measure was available, a questionnaire was prepared by the author to elicit relevant information. The questionnaire attempts to probe into (a) regularity and punctuality regarding study hour, (b) library habits and facilities, (c) study practice—pose, postures, number of hours devoted, and (d) preparation of notes, class notes, etc., besides other things. Almost all the items of this questionnaire were rated on a three-point scale having numerical values of 2, 1 and 0. The sum total of the marks obtained by a student was his score on study habit.

(iv) Achievement Motivation—A Bengali version of the Mc Clelland's (1961) Achievement Motivation Questionnaire was prepared by the author for ascertaining the achievement attitude of the students concerned. The central components that Mc Clelland regarded as characteristic of achievement motivation are consciousness of time, dislike for waste, and commitment to work, efficiency, and achievement (1).

Results—The following notations were employed in the study:

Y=Scholastic Achievement

X_1 =General Mental Ability

X_2 =Study Habit

X_3 =Achievement Motivation

The Means and S.D.s of these measures are shown in Table II.

TABLE II

Measures				Y	X_1	X_2	X_3
Mean	..	..	..	491.81	127.14	43.08	6.08
S.D.	..	..	..	67.94	11.29	7.17	1.11

Pearson's Product Moment Correlational Procedures were followed to determine the relationships among these measures. Analysis revealed the following relationships shown in Table III.

TABLE III

Co-efficients of correlation							
Measures		YX_1	YX_2	YX_3	X_1X_2	X_1X_3	X_2X_3
r	..	.615**	-0.10	.33*	0.10	-0.15	-0.099

**Significant beyond .01 level of confidence.

*Significant at .05 level of confidence.

In order to assess the independent contribution of each predictor variable a partial correlational analysis was performed. The results of such analyses are presented in Table IV.

TABLE IV
Comparison of Product Moment and Partial Correlations

Serial No.	Correlates			PPM r	Partial correlation	Variable controlled	
1.	..	YX ₁	..	..	0.615**	0.64**	X ₂
2.	..	YX ₁	..	..	0.615**	0.71**	X ₂
3.	..	YX ₁	..	..	0.615**	0.70**	X ₂ X ₃
4.	..	YX ₂	..	..	-0.10	-0.21	X ₁
5.	..	YX ₂	..	..	-0.10	0.24	X ₃
6.	..	YX ₂	..	..	-0.10	-0.19	X ₁ X ₃
7.	..	YX ₃	..	..	0.33*	0.54**	X ₁
8.	..	YX ₃	..	..	0.33*	0.32*	X ₂
9.	..	YX ₃	..	..	0.33*	0.31*	X ₁ X ₂
10.	..	X ₁ X ₂	..	..	0.10	0.08	X ₃
11.	..	X ₁ X ₃	..	..	-0.15	-0.14	X ₂
12.	..	X ₂ X ₃	..	..	-0.099	-0.08	X ₁

**Significant beyond .01 level of confidence.

*Significant at .05 level of confidence.

When general mental ability was alone considered the linear regression equation was: $Y = 3.73X_1 + 17.58$.

Again when general mental ability and achievement motivation were considered together the multiple regression equation was calculated to be: $Y = 4.11X_1 + 26.19X_3 - 189.96$.

To complete the analysis concerning the relationship of scholastic achievement to the three variables in the study, the multiple regression coefficients were computed which read as follows:—

$$Y = 4.01X_1 - 1.18X_2 + 23.91X_3 - 112.56.$$

The multiple correlation coefficient of scholastic achievement, general mental ability, study habit, and achievement motivation was found to be: $R_{X_1X_2X_3} = .69$ (significant beyond 0.01 level of confidence).

As the inter-correlation coefficients reveal a negative or practically no correlation between study habit and scholastic achievement the variable study habit was omitted and the multiple correlation coefficient of the remaining two variables with the criterion was: $R_{Y.X_1X_3} = .75$ (significant beyond 0.01 level of confidence).

The simple correlation coefficient $r_{Y.X_1}$ provides a means of interpreting the linear regression equation when general mental ability is alone considered. Likewise, multiple correlation coefficient provides means of interpreting the regression equation when two or more independent predictive measures are employed. It is evident from the findings that $r_{Y.X_1X_3}$ (.75) is greater than $r_{Y.X_1X_3X_2}$ (.69) which again is greater than $r_{Y.X_1}$ (.62); and that each of these three ratios is significant at both probability levels.

Interpretation and Discussion: Analysis of the results reveals the following:—

1. The partial correlation coefficient between scholastic achievement (Y) and general mental ability (X_1), eliminating the effect of study habit (X_2), is found to be .64 (significant beyond .01 level of confidence). This means that had the group possessed the same level of study habit the correlation between scholastic achievement and general mental ability would have been almost the same as when the students possess varying levels of study habit ($r_{YX_1} = .62$). In other words, study habit alone, if not linked up with intelligence, fails to yield better success in the scholastic sphere.

The partial correlation coefficient between scholastic achievement and general mental ability, eliminating the effect of achievement motivation, is found to be .71 (significant beyond .01 level of confidence). This means that had the group possessed the same level of achievement motivation, the correlation between scholastic achievement and general mental ability would have been .71 instead of .62. When students' achievement motivation levels are alike, there is clearly a much closer relation between scholastic achievement and general mental ability than there is when achievement motivation varies.

Moreover, the partial correlation coefficient between scholastic achievement and general mental ability, eliminating the effects of study habit and achievement motivation, is found to be .70. All this indicates a slight negative role played by study habit in the sphere of scholastic achievement of this group.

2. The partial correlation coefficient between scholastic achievement and study habit, eliminating the effect of general mental ability, is found to be $-.21$. This means that had the group possessed the same level of general mental ability there would have been a closer negative correspondence between scholastic achievement and study habit than there is when the students possess varying amounts of general mental ability ($r_{YX_2} = -.10$). In other words, since r_{YX_1} is .615, it is obvious that high achievers are more intelligent and depend less on study habit for their academic success.

The partial correlation coefficient between scholastic achievement and study habit, eliminating the effect of achievement motivation, is .24. This means that had the group possessed the same achievement motivation level, there would have been a much closer correspondence between scholastic achievement and study habit than there is when the students possess varying degrees of achievement motivation.

Again, the partial correlation coefficient between scholastic achievement and study habit, eliminating the effects of general mental ability and achievement motivation, is found to be $-.19$. All this suggests that particularly in this group of subjects study habit seems to have a negative, though negligible, bearing on scholastic achievement.

3. The partial correlation co-efficient between scholastic achievement and achievement motivation, eliminating the effect of general mental ability, is found to be .54 (significant beyond .01 level of confidence). This means that had the group possessed the same level of general mental ability, there would have been a much closer correspondence between scholastic achievement and achievement

motivation than there is when the students possess varying amounts of general mental ability ($r_{YX_3} = .33$.) To state otherwise, high achievers of similar intelligence do possess greater achievement motivation.

The partial correlation co-efficient between scholastic achievement and achievement motivation, eliminating the effect of study habit, is found to be .32 (significant at .05 level of confidence). This means that had the group possessed similar study habits, the correlation between scholastic achievement and achievement motivation would have been almost the same as when the students possess varying levels of study habit ($r_{YX_3} = .33$.) In other words, a dull boy inspite of his best study habits fails to achieve greater scholastic success.

Moreover, the partial correlation coefficient between scholastic achievement and achievement motivation, eliminating the effects of general mental ability and study habit, is found to be .31 (significant at .05 level of confidence). This means that had the group possessed the same levels of general mental ability and study habit, the correlation between scholastic achievement and achievement motivation would have been almost the same as when the students possess varying levels of general mental ability and study habit ($r_{YX_3} = .33$).

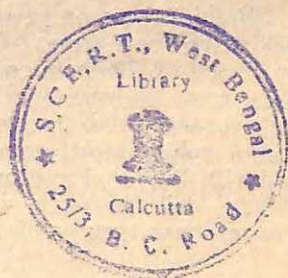
4. The partial correlation coefficient between general mental ability and study habit, eliminating the effect of achievement motivation, is negligible ($r = .08$). The partial correlation coefficient between general mental ability and achievement motivation, eliminating the effect of study habit, is negligibly negative ($r = -.14$). A similar partial correlation coefficient is obtained also between study habit and achievement motivation when the effect of general mental ability is partialled out.
5. It has been already shown that $r_{YX_1X_3}$ (.75) is greater than $r_{YX_1X_2}$ (.69) which again is greater than r_{YX_1} (.62) and each is significant at both probability levels. This means that it is worthwhile to take into consideration a student's general mental ability score as well as his achievement motivation score in predicting his scholastic achievement.

Conclusion—The above analysis of the findings indicates that general mental ability is the most predominant factor in determining scholastic achievement ($r = .62$) and achievement motivation comes next ($r = .33$) in the picture. Deb also finds that the most important factor for success in natural science is intelligence (2). In his study Rao concludes that 64 per cent. of the variations in scholastic achievement are due to variations in intelligence ($r = .8$) (3). No substantial relationship seems to exist between general mental ability and study habit ($r = .10$) in this study. The same is revealed also in the investigations of Brog (1) and Rao (3). No substantial relationship is found to exist between general mental ability and achievement motivation in the present inquiry and this is corroborated by the findings of Lynn (4).

The multiple regressional and partial correlational analyses reveal that so far as the present sample is concerned—and it is a highly intelligent group (Mean general mental ability = 127 T-score)—study habit plays an insignificant role, its effect on scholastic achievement being practically negligible. Thus further research on a more representative sample would be required to ascertain the bearing of study habit on scholastic achievement.

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DEVELOPING AN APTITUDE TEST BATTERY FOR SELECTION OF PUPILS FOR THE AGRICULTURE COURSE IN HIGHER SECONDARY SCHOOLS

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&
Manju Chakraborty

Researches show that aptitudes crystallise quite early in life, almost by the time the boy or the girl reaches the age of 15 plus and that if a pupil's aptitudes can be ascertained before he/she begins a course, much of the possible wastage of time, talent and money can be averted. In a previous study by one of the authors (1), it was found that except in a very few cases objective tools are seldom used in the selection of pupils for the agriculture course in higher secondary schools of West Bengal. In the absence of any aptitude test batteries, the schools are mainly dependent on guardians' and pupils' options. Moreover, the pupils who have no chance to opt for other streams are often, it seems, forced to go in for this course. Thus there is a great need for developing a battery of Agricultural Aptitude Tests that would help in the selection of pupils on the basis of their "aptitudes" in agriculture at the end of Class VIII and also Class X.* Here by aptitudes we mean "latent potentialities, undeveloped capacities to acquire abilities and skills and to demonstrate achievements." (2)

In developing Aptitude Test batteries in agriculture, traits and aptitudes responsible for success in the particular course were first pinpointed and effort was made to analyse them. It was found that to be successful in agricultural courses, a person should have keen interest in plant and animal life, strong desire to collect information regarding agricultural data of his own land, ability to apply the knowledge of general science to the problems of agricultural production, love for rural life and environment, sympathy for the rural folk, willingness to participate in rural development projects, and the like. "The term 'trait', it might be noted, 'is used as comparable, in the field of interest and personality, with the term aptitude in the field of abilities.'" (3)

Construction of the Test and the Inventory—Keeping the above analysis in mind a team, consisting of some members of the Bureau Staff, decided to construct items on the basis of (i) general school achievement, (ii) general information, (iii) common observation, (iv) items on biographical factors and (v) personality traits.

Besides those on personality traits, 350 items were constructed which covered the other four areas. Of these, 190 items were retained after having been processed by the team conjointly with a specialist of the West Bengal Agricultural Directorate conversant with the training programmes in agriculture. The items were arranged into 2 tests (i) Aptitude Test consisting of items relating to general school achievement, common observation and general information (183 items) and (ii) Pupils' Inventory consisting of items on background information (7 items). All the items, constructed in the regional language, i.e., Bengali, were free-response type, while no time limit was fixed for the test and the inventory.

*There are two types of courses in agriculture : (1) One at the end of Class VIII courses at the Higher Secondary level, (ii) another at the end of School Final courses at the Gram Sevak Training Centres.

First Trial Administration—The test and the inventory were administered to 60 pupils (mean age 15.37 years in the range of 13-19 years) of Class IX of the agricultural stream of four rural higher secondary schools.

Results of the Trial Administration and Discussion—(i) *Different statistics of the test scores*—The scores of 60 pupils on the test were analysed as follows:—

TABLE No. I
Different statistics of the Test Scores

N=60.

Maximum possible Score—183

The range of Scores varies between 35 and 100.

Mean	Mdn	Mode	SEm	SK	SD	SE/SD
65.00	65.20	65.60	2.05	-.03	15.80	1.45

The statistical analysis thus indicates clearly that the distribution is more or less normal. The data reveal that some items remain unanswered by all the pupils of the group. It may be due to content difficulty of the items concerned and also, to some extent, to language complexity involved in the framing of the items. However, as the test has been administered only to students of the agricultural stream of Class IX, some of the "difficult" items should have their place in the test in order that it may serve as an appropriate tool for selection purposes at the end of Class X also.

(ii) *Item analysis of the Test*—With a view to developing the final form of the test, each of the items has been analysed. The selection of items for the test in its final form is based on two considerations, viz., first, general planning of the test, i.e., to cover three areas as stated before and, second, on the statistical characteristics of each item. Two statistical aspects of each individual item are considered. The first is the difficulty value of each item for the group under study. The second is its discriminating index which is measured by the difference in the proportion of right responses between the high and the low ability groups. The table (Appendix I, at the end of the paper) indicates the difficulty values and discriminating indices of 101 selected items of the Test.

Generally a test may not have items whose validity indices are less than 0.2. But for the present we have lowered this level to 0.1, since we want to retain as many items in the test as possible, as it awaits further and final administration and the present one being only a pre-tryout study. For the rest of the items thorough analysis has been made to determine their content validity in the light of expert opinion and the following 42 items have been retained.

TABLE No. 2
Classification of 42 items selected on the basis of content validity

			General information	Observation	General achievement	Total
Number of items	..	..	15	10	17	42
Percentage	..	..	35.71	23.82	40.47	100

The following table shows the final selection of the valid items in different sub-tests mentioned earlier.

TABLE No. 3

Total number of valid items in different Sub-Tests

Areas		Sub-Test I General information	Sub-Test II Observation	Sub-Test III General achievement	Total
Number of items in the test	..	55	40	48	143
Percentage		38.46	27.97	33.57	100.00

(iii) *Different Statistics of the Inventory Scores*—The Inventory consisting of family background information was administered to the same group of pupils. The results are as follows:—

N=60

Maximum possible score—7

TABLE No. 4

Different statistics of the Background Information Inventory Scores

Mean	Mdn	Sk	Sd
4.07	4.88	-1.56	1.56

Statistical calculations show that before coming to any dependable conclusion about the suitability of the Pupils' Inventory the number of items needs be increased and more areas of family background covered.

(iv) *Item analysis of the Inventory*—The following table gives the necessary information regarding the items of the Background Information Inventory.

TABLE No. 5

The Difficulty Values and Validity Indices of the items of the Background Information Inventory

Item		a	b	c	d	e	f	g
Difficulty Value		.87	.67	.57	.27	.33	.77	.60
Validity Index		.27	.53	.87	.40	.67	.47	.80

From the table it appears that the validity indices vary from .27 to .80, while the difficulty values range from .27 to .87. It appears that each of the items has got a reasonably high validity index. Hence these items should be retained along with some more items to be constructed.

(v) *Relation between the Test and the Inventory*.—The bearing of the Inventory Scores on Scores of the Aptitude Test has been studied. We have calculated point bi-serial correlation coefficients between the total score of the Aptitude Test and the dichotomous variable (right, wrong) for each of the items of the inventory. The following table shows the point bi-serial correlation coefficients.

TABLE No. 6

Point bi-serial correlation coefficient of each item of the Inventory with the Aptitude Test.

Item	a	b	c	d	e	f	g
Point bi-serial correlation coefficient.	.14	.07	.12	.10	.05	.11	.04

All these correlation coefficients being insignificant at both the levels, it is inferred that the aptitude test is not related with any of the items of the Background Information Inventory. As an independent tool, the inventory may, however, have its own merit which has got to be determined through further investigation.

Conclusion

(i) For the final test batteries, a Personality Inventory Form should be developed to assess the various traits of personality required for the successful completion of the course.

(ii) The items of the aptitude test should properly be arranged in order of difficulty, and the language of the items should be improved where necessary.

(iii) Inclusion of more items in the Inventory is likely to make it more useful.

((iv) All the three evaluative tools should then be administered to a representative sample of Class VIII and Class X pupils of West Bengal to determine necessary norms of these tools and to study their inter-relations.

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APPENDIX I

Selected items in order of their Difficulty values

Serial No.	Item No.	Difficulty Value.	Validity Index.
1	1	.95	.10
2	8	.91	.10
3	80	.91	.10
4	79	.86	.14
5	145	.86	.14
6	46	.84	.10

Serial No.					Item No.	Difficulty Value.	Validity Index.
7	..	..	..	..	127	.84	.10
8	..	..	..	..	167	.84	.10
9	..	..	..	..	5	.83	.21
10	..	..	..	..	75	.83	.21
11	..	..	..	..	151	.83	.21
12	..	..	..	..	63	.79	.14
13	..	..	..	..	147	.78	.10
14	..	..	..	..	66	.76	.21
15	..	..	..	..	42	.76	.14
16	..	..	..	..	104	.74	.17
17	..	..	..	..	136	.72	.48
18	..	..	..	..	162	.69	.21
19	..	..	..	..	112	.67	.31
20	..	..	..	..	35	.67	.21
21	..	..	..	..	36	.67	.17
22	..	..	..	..	81	.67	.17
23	..	..	..	..	65	.64	.24
24	..	..	..	..	.85	.64	.31
25	..	..	..	..	146	.64	.17
26	..	..	..	..	157	.62	.28
27	..	..	..	..	98	.62	.28
28	..	..	..	..	6	.59	.48
29	..	..	..	..	48	.59	.28
30	..	..	..	..	52	.59	.28
31	..	..	..	..	169	.59	.29
32	..	..	..	..	95	.59	.48
33	..	..	..	..	53	.57	.10
34	..	..	..	..	58	.57	.38
35	..	..	..	..	106	.57	.31
36	..	..	..	..	176	.57	.10
37	..	..	..	..	181	.57	.10
38	..	..	..	..	67	.55	.34
39	..	..	..	..	23	.52	.34
40	..	..	..	..	24	.52	.55
41	..	..	..	..	45	.50	.10
42	..	..	..	..	92	.50	.24
43	..	..	..	..	180	.50	.17
44	..	..	..	..	29	.48	.28
45	..	..	..	..	34	.48	.41
46	..	..	..	..	93	.45	.14
47	..	..	..	..	174	.45	.62
48	..	..	..	..	17	.43	.17
49	..	..	..	..	54	.43	.24
50	..	..	..	..	124	.43	.45
51	..	..	..	..	148	.43	.17
52	..	..	..	..	183	.43	.10
53	..	..	..	..	41	.41	.14
54	..	..	..	..	155	.41	.14
55	..	..	..	..	27	.40	.45
56	..	..	..	..	37	.40	.21
57	..	..	..	..	39	.40	.14
58	..	..	..	..	100	.40	.17
59	..	..	..	..	87	.38	.28

Serial No.					Item No.	Difficulty Value.	Validity Index.
60	..	..	..	..	38	.36	.38
61	..	..	..	..	33	.36	.24
62	..	..	..	..	55	.36	.17
63	..	..	..	..	101	.34	.14
64	..	..	..	..	85	.33	.10
65	..	..	..	..	138	.32	.31
66	..	..	..	..	140	.31	.21
67	..	..	..	..	168	.31	.21
68	..	..	..	..	69	.29	.24
69	..	..	..	..	18	.28	.34
70	..	..	..	..	25	.28	.21
71	..	..	..	..	122	.28	.14
72	..	..	..	..	26	.26	.10
73	..	..	..	..	44	.26	.38
74	..	..	..	..	88	.26	.10
75	..	..	..	..	128	.26	.24
76	..	..	..	..	110	.24	.28
77	..	..	..	..	161	.24	.14
78	..	..	..	..	31	.22	.17
79	..	..	..	..	102	.22	.10
80	..	..	..	..	47	.22	.10
81	..	..	..	..	141	.21	.28
82	..	..	..	..	7	.19	.24
83	..	..	..	..	21	.19	.24
84	..	..	..	..	90	.19	.31
85	..	..	..	..	103	.19	.31
86	..	..	..	..	133	.19	.17
87	..	..	..	..	170	.19	.24
88	..	..	..	..	82	.17	.21
89	..	..	..	..	163	.17	.21
90	..	..	..	..	71	.17	.14
91	..	..	..	..	99	.17	.14
92	..	..	..	..	131	.14	.14
93	..	..	..	..	50	.12	.17
94	..	..	..	..	89	.12	.17
95	..	..	..	..	91	.10	.14
96	..	..	..	..	134	.10	.14
97	..	..	..	..	160	.10	.14
98	..	..	..	..	32	.09	.10
99	..	..	..	..	158	.09	.10
100	..	..	..	..	30	.07	.14
101	..	..	..	..	74	.05	.10

A COMPARATIVE STUDY OF THE DISTRIBUTION OF ATTITUDE OF DIFFERENT GROUPS TOWARDS TEACHING PROFESSION ON AN ATTITUDE CONTINUUM

Shila Datta

Purpose

The present study consists in a comparison of different groups, viz., students of a teachers' training college and students of a post-graduate university class with regard to their attitude towards the teaching profession as evinced through their opinions indicating acceptance or rejection of this profession on an attitude continuum. It also aims at ascertaining whether there is any correspondence between the attitude of the students of the teachers' training college as determined by this instrument and that as assessed by the members of the staff of this college who had earlier interviewed these subjects during the selection test.

The concept of "attitude" used here implies, as put by Thurstone and Chave, "the sum total of man's inclinations and feelings, prejudice or bias, preconceived notions, ideas, fears, threats and convictions about any specific topic". Thus a man's attitude towards the teaching profession means here all that he thinks and feels about teaching. But there are some limitations from which all attitude scales suffer. The attitude which is shown towards a particular topic under certain social, economic or environmental condition is subject to change with change in any of the factors influencing it. The individual also may not disclose his real attitude, for one reason or another, while responding to the statements in the scale.

Tools

The instrument for measuring attitude used in this study is the Attitude Scale for the Teaching Profession developed at the Bureau of Educational and Psychological Research, Calcutta, for selection of students in teachers' training colleges and also for selection of teachers in schools. The procedure adopted for developing the scale was that of Thurstone and Chave used for the development of "maximum probability type scales".

The Attitude Scale for the Teaching Profession consists of 42 statements. The scale values, ranging from 0.2 to 8.7, are more or less equispaced between 1 and 9. The scale is self-administering. Instructions for the testee read as follows: "Below are given a few statements about teaching as a profession. Consider each of the statements very carefully and then write 'yes' in the space before each of the statements with which you are in complete agreement and write 'no' before all the others. Each individual should interpret the statements for himself." There is no time limit, but not more than 10 minutes will be usually required by an individual for the whole job. Answers to the statements are to be scored according to the value given to each of the statements agreed at by the subject. The total value of all the statements against which the subject writes "yes" is taken as his score.

Subjects

The scale was presented to 50 students of the David Hare Training College and 25 students of a post-graduate class in the Department of Psychology of the University of Calcutta during the session 1971-72.

The sample was divided into three sub-groups, each consisting of 25 students, as stated below:

Group I—Teachers under training.

Group II—Freshers under training.

Group III—Post-Graduate students, not under professional training meant for teachers.

Results

The following Table No. 1 furnishes the Mean, Standard Deviations, and Differences between Mean Attitude Scores of all the three groups, besides the coefficients of correlation concerning the teacher-trainees and fresher-trainees in regard to their attitude as determined by the scale and as assessed by their selectors. The coefficients of correlation were calculated by the Product Moment Method.

TABLE No. 1

Group	Mean	S.D.	M.D.	r	Remarks
I	116.1	33.7	(Grs. I & II) 1.84**	-.52*	**Significant at 0.01 level of confidence. *Significant at 0.05 level of confidence.
II	127.3	26.46	(Grs. II & III) 2.17**	.02	
III	115.9	27.60	(Grs. I & III)	.02	

Discussion

As evident in the above Table the attitude of the group of fresher-trainees (Group II) towards the teaching profession is significantly more favourable than that of the other two groups.

The standard deviations of the groups show that dispersion of scores is closely similar in respect of the fresher-trainees (Group II) and students of the post-graduate class (Group III), while the variability in attitude towards this profession is greater for the teachers under training (Group I).

The correlation between selectors' rating scores and the attitude scale scores turns out to be miserably negligible for the fresher-trainees whereas that for the teacher-trainees is significantly negative.

The significantly higher mean score of the group of freshers indicates their more favourable attitude towards the teaching profession, compared with the other two groups. This is possibly because they have joined the course with a fresh mind and a sort of decision to enter the vocation. The present state of chaos and confusion in most of the schools and colleges may have adversely affected the attitude of the subjects belonging to the first and the third groups, who are in direct contact with the school and college environment. It is also not quite unlikely that a strong desire, based on extraneous considerations, for getting into a training college in the face of hard competition may also have induced the teacher-trainees to hide their real thoughts and feelings towards this profession from the selectors who had assessed their suitability for the training course.

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A STUDY OF PERSONALITY TRAITS OF A GROUP OF NATIONAL AWARDEE TEACHERS BY THE BERNREUTER PERSONALITY INVENTORY

K. K. Chatterjee

I. Introduction

Every year some elementary and secondary school teachers, throughout India, are honoured at the national level for their outstanding service as teachers and organisers in the field of education. A sample of these outstanding teachers is a valuable source of study and investigation on the qualities of successful teaching personnel as available in our country. An analysis of the personality traits of these teachers may help us in understanding and locating the characteristics of successful teachers. In other words, it may help us in differentiating between well-adjusted and maladjusted teachers. The selection of the B.P.I. as a measuring tool has been made after considering its efficacy in measuring identifiable personality traits which may be related to success and satisfaction in profession.

The B.P.I. was designed to be a general-purpose instrument, indicating positions on different trait-variables and also degree of maladjustment. According to Bernreuter, behaviour in a certain situation may be indicative of several traits and a limited number of items may do the work of a much larger number by the economical device of giving each item scoring weights for more than one trait. Bernreuter defined four trait-variables in this inventory, viz., (i) Neurotic Tendency (B1—N); (ii) Self-Sufficiency (B2—S); (iii) Introversion—Extraversion (B3—I); and (iv) Dominance—Submission (B4—D). Gayen and Saha (1954) provide detailed guidelines for the interpretation of scores on these scales. The B.P.I. was developed for use with adolescents and adults and separate percentile norms for high school boys, high school girls, college men, college women, adult men and adult women were provided. Age does not affect scores in relatively homogeneous populations such as those studied by Bernreuter (1933), although in more heterogeneous groups self-sufficiency and dominance seem to increase with age.

Numerous validation studies of the B.P.I. have been made by Bernreuter (1933), Landis and Katz (1934), Bloom (1936), Hunter and Jordan (1939), Super (1942), Seagoe (1946), McMurry (1932), Laycock (1934) and others. In the matter of vocational and personnel selection, reports indicate that the B.P.I. shows discrimination between successful and unsuccessful YWCA secretaries, teachers and bank employees as mentioned by Guilford (1959). The inventory identifies general personality inadequacies better than it evaluates an individual's suitability for particular jobs or life situations. Practice teaching has frequently been selected as an activity in which success might be expected to be related to personality traits as measured by Bernreuter. Though some found no relationship using correlational techniques or critical ratios, when Laycock compared to top-and-bottom-quartile success groups, there were great differences on all the Bernreuter scales.

II. The Investigation

(i) *Aim*—The aim of this study is to measure some identifiable traits of personality which may be related to success and satisfaction in the profession of teaching.

(ii) *Subjects and tools*—Twenty-one teacher-recipients of the National Award who were honoured by the Government of India during the period from 1958-59 to 1968-69 for their brilliant records of service to the nation were selected as subjects of the present study.

The Short Form of the B.P.I., proposed by Shri S. K. Bose, Department of Psychology, Calcutta University, Dr C. R. Rao, Dr R. K. Mukherjee and Shri S. C. Sen of the Indian Statistical Institute, Calcutta and translated into Bengali by Prof. D. Mahanta of the Bureau of Educational and Psychological Research, Calcutta, was administered. Though this form contains only 30 items of the original 125, it fairly represents the original form as studied by Gayen and Saha (1954). Besides the B.P.I. (Short Form), a questionnaire was devised by Dr R. C. Das and Shri K. K. Chatterjee of this Bureau to collect bio-data of the subjects under study. Table I presents the analysis of these bio-data.

TABLE No. 1
(a) Analysis of Bio-data

N=21

Sex.	Age.	School.	Academic Quali- fication.	Professional training.
Male—19	40-50 yrs.—9	Primary—12*	Non-Matriculate—4	Trained—17
Female—2	51-65 yrs.—12	Secondary—9	Matriculate & Inter- mediate—9	Untrained—4
			Graduate & above—8	

*Includes one special school for deaf and dumb.

(b) Location

N=21

Midnapore	.. 3	Howrah	.. 2	Hooghly	.. 1	Birbhum	.. 1
Nadia	.. 3	Cooch Behar	.. 2	24 Parganas	.. 1	Darjeeling	.. 1
Murshidabad	.. 3	Burdwan	.. 2	Dinajpur	.. 1	Malda	.. 1

(iii) *Procedure and Methods of analysis*—Unlike the original form, the Bengali Adaptation of the Short Form of the B.P.I. has no percentile norms for adult men and adult women. But it was administered on a small sample of 67 secondary school teachers (hereafter referred to as Group 1) in 1959-60 and M, S.D. and S.E. of M. of the sample on four trait-variables were reported by Prof. D. Mahanta (1969). These measures have been taken as average scores of normal adult men and women on the Short Form and the scores of the subjects of the present study (hereafter referred to as Group 2) were transformed into sigma-scores on the basis of the statistics of Group 1 and then into standard scores with $M=50$ and $S.D.=10$. For further analysis, the subjects of Group 2 were classified into six groups on the basis of the deviation of the standard scores on each trait-variable from the mean scores of 50 in the following manner:—

Mean

Score

Socially disapproved direction.			Socially approved direction.		
+ 3 S. D.	+ 2 S. D.	+ 1 S. D.	+ 1 S. D.	+ 2 S. D.	+ 3 S. D.
—	—	—	—	—	—
Highly (H)	Moderately (M)	Slightly (S)	Slightly (S)	Moderately (M)	Highly (H)

The marginal scores are classified on precise calculation up to the decimal point.

Leaving aside the two groups which slightly (S) possess socially approved/disapproved traits, the two broad groups on both sides of the Mean viz., that showing a trait that is highly/moderately approved (HM) and that so disapproved (H'M') by the society are compared. The differences in percentages of cases of both the groups —(HM) and (H'M')— were obtained and their significance tested on B1—N, B2—S, B3—I and B4—D.

III. Results

TABLE No. 2

Mean and S.D. scores of Group 1 and Group 2 on B1—N, B2—S, B3—I and B4—D and significance of difference between the mean scores

Trait-Variables.	Gr. 1 N=67			Gr. 2 N=21			t-value	Significance level.
	M	S.D.	S.E. of M	M	S.D.	S.E. of M		
B 1—N ..	..	-9.3	21.52	2.6	-26.00	27.60	6.17	2.857 .01
B 2—S ..	..	..0	15.81	1.9	8.24	21.20	4.74	1.889 .05
B 3—I ..	..	-5.8	11.36	1.4	-8.95	13.95	3.12	1.035 *
B 4—D ..	..	6.6	14.86	1.8	21.40	20.10	4.50	3.563 .01

It will be seen in Table 2 in respect of stability-neuroticism and dominance-submission, the means of Group 2 are significantly different (at 1 per cent. level), although both the groups lean towards the same direction of social approval. On Self-sufficiency—Self-insufficiency the difference also turns out to be significant (at 5 per cent. level), but it is not so on the introversion-extraversion trait-variable.

TABLE No. 3

Standard Scores of the subjects on B1—N, B2—S, B3—I and B4—D

Index No. of the subjects.	B 1—N	B 2—S	B 3—I	B 4—D
1	40	65	40	68
2	63	56	62	38
3	48	37	38	46
4	70	22	63	26
5	30	81	38	78
6	40	44	43	68
7	47	59	53	48
8	28	72	33	77
9	28	55	23	71
10	36	60	73	51
11	48	54	55	66
12	62	51	56	58
13	53	42	42	54
14	27	81	33	82
15	39	54	50	54
16	36	54	53	50
17	35	51	38	71
18	57	45	54	58
19	38	50	35	61
20	31	64	35	58
21	26	65	32	79

The standard scores of 21 subjects on four trait-variables are shown in Table 3. It reveals the deviation of each score from the corresponding mean (50) in respect of each subject.

*Not significant.

At first the five alternative answers or possibilities were assigned five arbitrary weights of 1, 2, 3, 4 and 5. When all the items were answered by the subjects their individual responses were scored on the basis of arbitrary weights assigned as stated above. These scores are shown in the top rows in Table II in the Appendix.

Then each of the different alternatives were weighted in accordance with the degree of its divergence from the answer indicated as the typical answer by majority of the subjects.

The percentage of subjects who have selected each of the given answers is shown in Table II in the Appendix. Below each per cent. entries are shown σ -equivalents assigned to each alternative or tentative answer. It has already been stated that the opinions expressed by the subjects on every item are assumed to be normally distributed. σ -values of each per cent. checking equivalents were calculated. (Vide—Table No. 27 of H.E. Garrett's book on Statistics in Psychology and Education, Longmans, Green & Co., which shows the "average distance from the mean, in terms of σ , of each single percentage of a normal distribution".)

In order to avoid all the negative signs before the σ -values, each σ -weight was expressed as a σ -distance from -3.00 . In this way all the σ -values were converted into positive values. After that the decimal points were dropped and first two digits of all σ -values were chosen. Now the five σ -values of all the alternative or tentative answers of each item obtained a new value. These values are shown below their respective original σ -values in Table II in the Appendix.

Interpretation of Data and Discussion

When all the twenty items of the questionnaire have been scaled, a subject's total score or his attitude towards the teaching profession in general may be estimated by adding up the different weights given to the various preferences shown by him in answering different items of the questionnaire.

Scoring can be done by two methods. If scoring is done according to the arbitrary weighting method, the arbitrary weights given to the different responses of a subject are to be added in order to get the total score obtained by him. Two examples are given in Table III in the Appendix.

Two cases, one of serial No. 5 and another of serial No. 48, were selected at random. According to this method the total score of the first subject is 60 and the total score of the second subject is 62.

But the author has preferred the second method or the method of weighting in accordance with the degree of divergence from the answer indicated as the typical answer by majority of the subjects as was done by Likert. It is true that the greater differentiation values which are given to a single item by the σ -scaling technique may be lost by the process of adding or averaging the score weights obtained by a subject in all the items. Yet this scaling method was adopted in order to get the units of a scale which are appreciably equal. It is expected that this method will help in comparing one item with another or one scale with another scale.

The σ -weights assigned to the first subject (Serial No. 5) are shown in Table III in the Appendix. The total score obtained by him according to this method is 576.

The σ -weights assigned to the second subject (Serial No. 48) are also shown in Table III in the Appendix. The total score obtained by this subject is 587.

The σ -weights were compared with the scores obtained by the subjects according to the arbitrary weighting method.

The first subject (Serial No. 5) scored 576 according to σ -weights and 60 according to the arbitrary weighting system.

The second subject (Serial No. 48) scored 587 according to the σ -weights and 62 according to the arbitrary weighting system.

So it is evident that a subject who scores higher according to σ -weights also scores higher according to the arbitrary weighting system. It should be recalled here that 3 experienced teachers were consulted while arranging alternative answers and assigning arbitrary weights.

Conclusion

Therefore we are naturally tempted to come to the conclusion that a subject who obtains higher scores in the σ -scale will turn to be a better teacher in future.

But we will be able to come to a definite conclusion after comparing our test results with the University examination results of these subjects, when they will appear in the Final Examination.

Such a *scientific Psychological Test Scale* will be very useful for selecting future teacher-trainees of Teachers' Training Colleges and in giving guidance to our *University graduates who intend to join the teaching profession* in future.

Scope for Further Researches

There is still scope for future researches in this field. It is hoped that in near future the number of questions or items of this questionnaire will be increased and applied to a larger number of subjects. Attempts will be made in that study to ascertain the reliability and validity of the scale more definitely. This study is just a beginning.

APPENDIX

TABLE I

Specimen of some of the items of the Questionnaire

Item No. 16

Q.—Which of the following activities would you like to engage yourself in during your leisure hours?

- (a) Artistic work.
- (b) Writing.
- (c) Reading.
- (d) Playing.
- (e) Gardening.

Item No. 17

Q.—What steps would you adopt to be popular with your students?

- (a) Preaching of some ideals or some political ideas amongst students.
- (b) Taking active part in games and other co-curricular activities with the students.
- (c) Being a good teacher and a strict disciplinarian.
- (d) Being friendly and sympathetic to them.
- (e) Giving my students special coaching in order to help them to pass examinations.

TABLE No. 4

Distribution of Cases according to degrees of Stability and Neuroticism.

N=21	H S	M S	S S	H M S	H M S expressed in percentage.	T- value	Signi- ficance Level
N	5	8	3	13	62		
	H' N	M' N	S' N	H' M' N	H' M' N expressed in percentage.	3.20	.01
N	0	3	2	3	14		

TABLE No. 5

Distribution of Cases according to degrees of Self-Sufficiency and Self-Insufficiency.

N=21	H S S	M S S	S S S	H M S S	H M S S expressed in percentage.	T-Value	Signi- ficance Level.
N	3	4	8	7	34		
	H' S I	M' S I	S' S I	H' M' S I	H' M' S I expressed in percentage.	1.95	.05
N	1	1	4	2	9		

TABLE No. 6

Distribution of Cases according to degrees of Extraversion and Introversion.

N=21	H E	M E	S E	H M E	H M E expressed in percentage.	T-value	Signi- ficance Level
N	1	8	4	9	43		
	H' I	M' I	S' I	H' M' I	H' M' I expressed in percentage.	2.07	.05
N	1	2	5	3	14		

TABLE No. 7

Distribution of cases according to degrees of Dominance and Submission.

N=21	H D	M D	S D	H M D	H M D expressed in percentage.	T-value	Signi- ficance level.
N	6	4	7	10	48		
	H' S	M' S	S' S	H' M' S	H' M' S expressed in percentage.	2.79	.01
N	1	1	2	2	9		

A comparison of the distribution of cases (in percentages) between high and moderate groups from both sides of the mean shows that the group under study (Group 2), as a whole, is—

- (i) definitely stable and dominant (difference significant at 1 per cent. level) and
- (ii) self-sufficient and extravert (difference significant at 5 per cent. level)

IV. Discussion and Conclusion—B1—N, the emotional instability or neuroticism scale, appears to measure emotional sensitivity. Super (1949) refers to occupational significance of the scale. In case of emotionally stable teachers the tendency is to stay in their field while the able-unstable (intelligent neurotic) tend to change over to other occupations. In comparison with the Teacher Group (Group 1), the National Awardees (Group 2) are definitely more stable. In the selection of teachers it is, therefore, certainly worthwhile to measure the trait of neuroticism.

B2—S, the self-sufficiency scale, measures whether a person is self-sufficient, i.e., one who does not depend on others for advice and emotional support. The occupational significance of the scale is indicated by the high scores made by leaders in different fields. It may be remembered that the National Awardees have generally contributed towards the development of their local community and more specifically towards the educational development in their respective areas. In this group (Group 2), low scores are observed only in two cases, whereas high and moderate scores (positive) are found in seven cases. For occupational selection, low scores signify problems calling for attention.

B3—I, the introversion-extraversion scale, appears to be highly correlated with B1—N (in the region of +.9 of even above) as reported in different studies. Like B1—N, as observed by Super, (1949) "low scores tend to indicate a wholesome extraversion, an ability to face facts and the environment objectively and to deal with them without internal conflict, whereas high scores suggest unwholesome introversion, poor adjustment to the environment and a tendency to withdraw from it". In the sample under study, such unwholesome introversion is indicated only in three cases. As B3—I is highly correlated with B1—N, it is apparent that high stability score automatically indicates "extraversion" and vice-versa. But neuroticism may exist both with introversion (as in the case of anxiety) and extraversion (as in the case of hysteria).

B4—D, the dominance-submission scale, measures not a particular trait but a combination of wholesome extraversion and socialability. The occupational significance of the scale, as reported by different investigators, is shown by the superior dominance of the employed, professional men, executives and such others and the submissiveness of the unemployed, unskilled, semi-skilled

workers and the like. Low scores (only two cases in the present group) indicate submissiveness and high scores (seven cases in this group) may be indications of either a tendency to take the initiative in social situations or a conviction that one should seem dominant.

It is evident that the present investigation aims at measuring group-trends, rather than individual traits, of successful teachers. For this purpose two methods of analysis—one, comparison between the two groups (Group 1 and Group 2) and, the other, comparison within the same group (Group 2)—were undertaken. From both kinds of analysis, it is found that stability and dominance are the most important trait-variables (significant at 1 per cent. level) followed by self-sufficiency (significant at 5 per cent. level) characterising the subjects of our study. The trait, Introversion-Extraversion, does not turn out to be significant when the two groups are compared, but when cases within the same group (Group 2) are taken into account it is found to be significant at 5 per cent. level of confidence. It may be concluded that successful teachers are generally extravert on the Bernreuter scale, but there is no significant difference between other teachers and the National Awardees in this respect. It seems three trait-variable of the B.P.I., viz., emotional stability, dominance and self-sufficiency, may reasonably be assumed to be related to success and satisfaction in the professional life of the National Awardee teachers. At the same time it is noted that there are few individual exceptions among them who are to be studied by more intensive methods.

In the light of our findings it seems advisable that the Bengali Adaptation of the Short Form of the B.P.I. can and should be used in the selection of personnel intending to enter the profession of teaching along with other suitable tools. However, its norms for adult men and women should be determined by administering it to larger samples of teachers to make it more useful.

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A STUDY OF FAMILY DISCIPLINE OF THE MALADJUSTED ADOLESCENTS EXAMINED AT THE ADOLESCENT GUIDANCE CENTRE*

Maya Mukerji

Purpose: Being engaged for several years in an intensive study of the maladjusted adolescents of the Adolescent Guidance Centre of the Bureau of Educational and Psychological Research, Calcutta, the author became increasingly aware of the importance of family and home discipline in shaping the personality of the adolescent. The purpose of this present study is to discover whether and in what degree too much disciplining at home or lack of it is conducive to adolescent maladjustment.

Materials and Method: Case records of 90 maladjusted adolescents attending the Adolescent Guidance Centre during 1961-1966 were analysed. These cases were referred to this Centre for educational and psychological difficulties. Out of 250 records, only 90 cases of "highly maladjusted" adolescents were selected on the basis of the Roger's Personality Inventory adapted at this Bureau. A longitudinal history of each adolescent was taken alongside intensive psychological testing and clinical-psychiatric interviews. Data of family discipline and home environment were collected by the Social Worker. The diagnostic categories of maladjustment (Table No. 1) depended upon the symptomatological as well as psychodynamic etiology. The varieties of family discipline (Table No. 2) were decided by the AGC team in a joint conference. Family discipline was given an overall rating by the Social Worker keeping in view the parent-child relationships, parental domination, the adolescent's behaviour at home, his daily routine, his habits, his extent of freedom from and dependence on parents, his hobbies and interests.

Results and Discussion: The distribution of family discipline and psychodiagnostic groups is illustrated in Table No. 3. The chi-square (16.21; df 9) is nearly significant at .05 level of confidence. Some of the conclusions of this study are noted below:

The most pathogenic discipline, i.e., the discipline evoking the maximum number of maladjustment cases in this sample is the "inconsistent type" (Group III) and the least pathogenic is the "strict and consistent type" (Group II). 41 cases of inconsistent discipline are distributed in 54 per cent. of psychoneurosis, 20 per cent. of psychosis, 17 per cent. of anti-social behaviour and 10 per cent. of educationally sub-normal (ESN), whereas only 2 cases of psychoneurosis, out of a total of 90 maladjusted adolescents, are found in the strict and consistently disciplined home.

Regarding the psychodynamic etiology of this, it is plausible that the underlying psychologic tone of inconsistent discipline, being ambivalent and conflicting, aggravates the conflictual and oppositional needs of the psychoneurotic child. There may, in fact, be two types of inconsistent discipline. In the first type the parent swings between his/her ambivalent feeling for the child and the ensuing discipline tends to become lax or punitive depending on the predominance of love/hate in the parent. In the second type of inconsistency, one of the parents is over-strict and the other over-indulgent and the tug of war between the two parents to control the child through domination and over-indulgence stimulates ambivalence and a pathological status-quo mentality in the child, so typical of psychoneurosis.

*The author is happy to acknowledge the contributions of her co-members of the AGC team at the Bureau in examining the cases reported in this study. She also thanks Sm. Manju Chakraborti, Lecturer in Statistics at the Bureau for doing the calculations for this papers.

TABLE No. 3

Distribution of family discipline across psychodiagnostic groups of adolescent maladjustment

Adolescent maladjustment.											
						I	II	III	IV	Total.	
Family Discipline						2	8	6	10	26	
I ..	..	..	..	..	..	2	8	6	10	26	
II	..	..	..	..	..	..	2	..	..	2	
III	..	..	..	..	..	8	22	7	4	41	
IV	..	..	..	..	..	4	6	7	5	21	
Total	..	..	..	..	..	14	37	20	19	90	

33 per cent. cases of loose discipline are found to be associated with anti-social and delinquent type of behaviour. This is understandable in the context of the delinquent psychodynamics of a weak super-ego further weakened by lack of control and supervision at home. The anti-social adolescent has a greater scope of running amok with anarchic discipline and absence of parental control.

Of all the four psychodiagnostic groups the ESN or the educationally sub-normal adolescents are found to be most subjected to the strict discipline. This is a pointer to the parental counselling programmes where the parents of sub-normal children have to be educated to accept the deficiencies of their children and cut off their over-ambitious and unrealistic expectations for their children instead of subjecting them to a strict and disciplinary schedule.

To sum up, the typical family discipline for a psychoneurotic adolescent is "inconsistent" and for an anti-social adolescent, it is "loose". The strict and consistent discipline has the lowest incidence in the pathologic groups obviously because it is the most favourable for the cohesive and integrated growth of the child's ego.

TABLE No. 1

Psychodiagnostic Groups of Adolescent Maladjustment (N=90)

Group I		Group II		Group III		Group IV	
N.	Percent.	N.	Percent.	N.	Percent.	N.	Percent.
14	15.56	37	41.11	20	22.22	19	21.11

Group I—Psychotic type of disorder (depressed, excitable, aloof and withdrawn children).

Group II—Psychoneurotic type of disorder (anxiety neurosis, hysterical convulsions and fits and psychosomatic disorder).

Group III—Anti-social adolescents (behaviour disorder and delinquent behaviour).

Group IV—ESN or educationally sub-normal group (dull, borderline and retarded cases).

TABLE No. 2

Varieties of Family Discipline (N=90)

Group I		Group II		Group III		Group IV	
N.	Percent.	N.	Percent.	N.	Percent.	N.	Percent.
26	28.89	2	2.22	41	45.56	21	23.23

Group I—Over-strict and rigid (where discipline, to a very large extent, is externally imposed and parent determined leaving thereby very little chance for the adolescent's freedom and self-determination. Parent control is over-determined, very rigid and parents' own needs rather than the needs of the child loom large. Over-indulgent and punitive parents are examples of this type).

Group II—Strict and consistent (where there is a balance between parent determination and self-determination; parent control is strict, consistent and child-centred).

Group III—Inconsistent (where the parents, because of their intrinsic ambivalence, fluctuate between domination and submission. Discipline, thus, becomes unstable and sporadic and parent control unpredictable and whimsical).

Group IV—Loose (where there is practically no fixed routine for the child, no supervision and no control. Parent control is either completely lacking or ineffective).

A COMPARATIVE STUDY OF PERSONALITY TRAITS OF TWO SIMILAR GROUPS OF ADOLESCENTS AS ASSESSED BY THE BERNREUTER PERSONALITY INVENTORY (ABRIDGED FORM)

Gita Sengupta and Tarubala Devi Chakraborty

Personality plays no less important a part than intelligence, special ability and character in contributing to success and failure in an individual's life. Psychologists have devised various methods for assessing the traits of personality of which inventories, questionnaires, rating scales, objective tests and projective tests are some very widely used. Some of these assess only specific traits of personality like neurotic tendency, self-sufficiency, dominance-submission, introversion-extroversion, etc., while others are designed to indicate degrees of adjustment to different aspects of the environment; to classify individuals into clinical groups or for screening purposes. Bernreuter's Personality Inventory is an example of the first type, i.e., it is designed to assess only a few specific traits of personality. According to Bernreuter (Gayen and Saha, 1954) testees securing high scores on the neurotic tendency scale would be generally emotionally unstable, while those scoring low on it would be emotionally stable or balanced. Similarly, high scores on the self-sufficiency scale would indicate self-adequacy which is a trait possessed by individuals who prefer to be alone, ignore others' advice, and are not at all eager to get others' encouragement and sympathy; low scores, on the other hand, would imply a quality of inadequacy of self meaning that such a person would hate solitude and often ask for sympathy and advice from others. Individuals scoring high on the introversion-extroversion scale would be introverts, and those scoring low would be extroverts. Lastly, high scores on the dominance-submission scale would imply domineering personality and low scores, on the contrary, would indicate submission and weakness.

Aim

The aim of the present study is mainly two-fold, (i) first, to ascertain whether any difference on any of the traits exists between the group of pupils studied earlier by Prof. D. Mahanta in 1959 (BEPR Monograph No. XVIII) and the group of pupils studied later by the present investigators in 1969, both the groups being very similar in respect of age and educational achievements; and (ii) secondly, to note whether the trend of leaning of the latter group is more or less similar to that of the former or not.

Sample

The sample comprised two similar groups of school-going adolescents in West Bengal. Both the groups were of approximately the same age, i.e., between 13 and 14 years, Group I consisted of 75 Class IX boys of a higher secondary school, and Group II included 62 boys from five higher secondary schools and 15 girls from one higher secondary school, who had all been just promoted to Class X of their respective institutions.

Tools

The Bengali version of the short form of Bernreuter's Personality Inventory (B.P.I.), developed by Prof. D. Mahanta at the Bureau of Educational and Psychological Research, Calcutta, and consisting of 30 items, was administered to both the groups. The original inventory developed by Bernreuter in 1933 consists of 125 items. As there were some practical difficulties in its administration and scoring the Indian Statistical Institute, Calcutta, designed an abridged form of this inventory with only 30 items which, it is claimed, fairly represent the 125 items in the original inventory. Prof. Mahanta made a Bengali version of this abridged form at the Bureau.

Method

To assess personality traits of the sample this Bengali version of the Bernreuter Personality Inventory was administered to the subjects of the two groups. The Mean and S.D. for each of the four traits, viz. B_1N , B_2S , B_3I , B_4D (i.e., neurotic tendency, self-sufficiency, introversion-extroversion, and dominance-submission, respectively) were calculated for each group from the obtained data. Standard Error(S.E.) and Critical Ratio(C.R.) were also worked out to determine whether any difference regarding any of the traits exists between these two similar groups under study. The results of these calculations are shown in the following Table No. I:

Results

TABLE No. I

Scale.	Group I (N=75)			Group II (N=77)				
	Mean.	S.E.	S.D.	Mean.	S.E.	S.D.	P.D.	C.R.
B_1N	-16.1	2.4	20.64	-5.5	2.8	25	3.7	2.86**
B_2S	0.9	2.1	18.49	-3.2	2.1	18.24	2.9	.70
B_3I	-9.1	1.4	11.82	-5.4	1.4	12.1	1.9	1.91*
B_4D	12.9	1.8	15.35	13.7	1.9	16.4	2.6	.30

** Significant beyond 0.01 level of confidence.

* Significant nearly at 0.05 level of confidence.

A comparative study of the figures given in the above Table reveals the following trait leanings in respect of the two groups:

TABLE II

Trait leanings.		Group I.		Group II.	
Emotional stability against neurotic tendency (B_1N).		Mean score negative.	significantly	Mean score negative.	significantly
Self-sufficiency against inadequacy (B_2S).	self.	Mean score just positive	..	Mean score slightly negative but difference insignificant	
Extroversion against introversion (B_3I).		Mean score negative.	significantly	Mean score negative.	significantly
Dominance against submission (B_4D).		Mean score positive.	significantly	Mean score positive.	significantly

(Significance of the Mean Scores is to be judged with reference to their respective standard Errors).

Discussion

It appears that the later group also tends to lean towards the direction of social approval, i.e., emotional stability against neurotic tendency, dominance against submission, and extroversion against introversion as does the earlier. The two groups thus shows some parity in regard to their traits as revealed by the Inventory.

The study of personality factors reveals that the second group, in comparison with the first, is less emotionally stable (Means : Group I : -16.1, Group II : -5.5, difference significant at 0.01), less self-sufficient, i.e., more dependent (Means : Group I : .09, Group II : .32, difference insignificant), less extroverted (Means : Group I : -9.1, Group II : -5.4, difference nearly significant at 0.05) and, lastly, slightly more dominating (Means : Group I : 12.9, Group II : 13.7, difference insignificant). In short, although the second group is broadly in agreement with the first both groups leaning towards the direction of social approval, yet the degree of leaning is slightly lesser in the second group than in the first.

Conclusion

While summing up, it may be pointed out that although the groups were studied under completely different situations, two different samples having been drawn from different areas at an interval of 10 years, they nevertheless show very similar leanings towards the direction of social approval which thus appears to be a characteristic of adolescents as a group.

Moreover, the significant difference with regard to neurotic tendency between the two groups (C.R.=2.86, significant beyond 0.01) perhaps reflects the influence of present socio-economic conditions on the pupils. In fact, students have to face more complicated situations both at home and school now-a-days than they had to ten years back when life was more disciplined and congenial. It is quite natural, therefore, that the impact of indiscipline, irregularities, and feelings of uncertainty and anxiety among the students of modern times may have led them more towards neuroticism and emotional disturbances than towards stability.

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A STUDY OF APTITUDE FOR THE TEACHING PROFESSION

H. C. Basu

Introduction to the Problem

All parents want to place their children under the care of good and efficient teachers, who have real zeal or aptitude for the teaching profession. Teachers' Training Colleges are intended to pick up and train such scholars.

It has long been felt that there should be a scientific Psychological Test Scale for selecting future trainees for the Teachers' Training Colleges of our country so that each and every school of the State may be provided with properly trained and efficient teachers.

In modern days some research workers are working in this field and urging their best to prepare such a Test Scale. In West Bengal also the Bureau of Educational and Psychological Research, Calcutta, is trying to prepare an Aptitude Test Scale in order to ascertain aptitudes of teachers for a considerable period of time. The present study, which also aims at preparing such a scale, may be regarded as an addition to all those previous studies at the Bureau. Another idea is to use the scale for giving educational guidance to our University graduates who intend to join the teaching profession in future.

The Experiments

With the ideas stated above a questionnaire, consisting of twenty items, directly connected with the actual teaching profession, was prepared. Each of the items of the questionnaire consists of a question followed by five tentative answers stating five notions about the teaching profession. In actual administration the subject is asked to go through each item one after another and to place a $\checkmark$ (tick) mark only against that statement (answer) which is most preferred by him. He is asked not to tick off more than one statement. Specimens of a few items of the questionnaire are given in Table I in the Appendix.

As soon as the alternatives or tentative answers of the different questions or items of the questionnaire were constructed, they were presented to 3 experienced teachers for rating them on a 5-point scale in order to arrange them in order of assumed preference.

One hundred teacher-trainees of the David Hare Training College, Calcutta, volunteered to act as subjects in this study. All of them were male trainees and came from various High Schools and Higher Secondary Schools of West Bengal. Their ages varied from 25 years to 41 years. But majority of them were of the age group of 28 to 30 years. Their professional experiences varied from 2 years 6 months to 16 years. Here again the majority of the subjects had teaching experience ranging from 5 years to 6 years.

The questionnaire was administered by the author with the help of some professors of the David Hare Training College. The actual time taken by the subjects to answer all the items of the questionnaire was recorded to be 10 minutes. Although all directions are given in the questionnaire itself, still detailed verbal directions were given by the author before administration. There are reasons to believe that the subjects answered all the items sincerely.

Statistical Methods used in this Study

It was assumed that the preferences expressed by the subjects in answering each of the items of the questionnaire will be normally distributed as was assumed by Likert in preparing his Internationalism Scale.

TABLE II
Scaling of answers given by subjects to alternatives
Serial order of alternatives answered

				a	b	c	d	e
Item 1—								
(i)	Arbitrary Weights	..		1	2	3	4	5
(ii)	Per cent. checking Equivalents			6	10	59	16	9
(iii)	σ -Values	..	..	-1.99	-1.24	-.13	+.97	+1.81
(iv)	Each σ -weight expressed as a σ -distance from -3.00σ . Dropping decimals and taking first two digits for making all values +ve.			10	18	29	40	48
Item 2—								
(i)	..	..	..	1	2	3	4	5
(ii)	..	..	..	4	18	44	22	12
(iii)	..	..	..	-2.16	-1.17	-.16	+.76	+1.67
(iv)	..	..	..	8	18	28	38	47
Item 3—								
(i)	..			1	2	3	4	5
(ii)	..	..	..	4	12	62	16	6
(iii)	..	..	..	-2.16	-1.31	-.10	+1.11	+1.99
(iv)	..	..	..	8	17	29	41	50
Item 4—								
(i)	..	..	..	1	2	3	4	5
(ii)	..	..	..	4	28	43	22	3
(iii)	..	..	..	-2.16	-.97	+.09	+1.13	+2.28
(iv)	..	..	..	8	20	31	41	53
Item 5—								
(i)	..	..	..	1	2	3	4	5
(ii)	..	..	..	5	23	41	21	10
(iii)	..	..	..	-2.10	-1.01	-.04	+.84	+1.76
(iv)	..	..	..	9	20	30	38	48
Item 6—								
(i)	..	..	..	1	2	3	4	5
(ii)	..	..	..	2	3	62	27	6
(iii)	..	..	..	-2.44	-1.82	-.41	+.90	+1.99
(iv)	..	..	..	6	12	26	39	50

				a	b	c	d	e
Item 7—								
(i)	..	..	..	1	2	3	4	5
(ii)	..	..	..	3	19	51	22	5
(iii)	..	..	..	- 2.28	- 1.20	- .07	+ 1.03	+ 2.10
(iv)	..	..	..	7	18	29	40	51
Item 8—								
(i)	..	..	..	1	2	3	4	5
(ii)	..	..	..	3	7	37	32	21
(iii)	..	..	..	- 2.28	- 1.53	- .60	+ .34	+ 1.37
(iv)	..	..	..	7	15	24	33	44
Item 9—								
(i)	..	..	..	1	2	3	4	5
(ii)	..	..	..	5	9	69	10	7
(iii)	..	..	..	- 2.10	- 1.33	- .05	+ 1.19	+ 1.92
(iv)	..	..	..	9	17	30	42	49
Item 10—								
(i)	..	..	..	1	2	3	4	5
(ii)	..	..	..	10	23	41	15	11
(iii)	..	..	..	- 1.76	- .81	+ .09	+ .91	+ 1.71
(iv)	..	..	..	12	22	31	39	47
Item 11—								
(i)	..	..	..	1	2	3	4	5
(ii)	..	..	..	9	11	40	22	18
(iii)	..	..	..	- 1.81	- 1.07	- .27	+ .56	+ 1.46
(iv)	..	..	..	12	19	27	36	45
Item 12—								
(i)	..	..	..	1	2	3	4	5
(ii)	..	..	..	15	25	55	3	2
(iii)	..	..	..	- 1.56	- .61	+ .52	+ 1.82	+ 2.44
(iv)	..	..	..	14	24	35	48	54
Item 13—								
(i)	..	..	..	1	2	3	4	5
(ii)	..	..	..	4	8	48	39	1
(iii)	..	..	..	- 2.16	- 1.42	- .38	+ .92	+ 2.70
(iv)	..	..	..	8	16	26	39	57

			a	b	c	d	e
Item 14—							
(i)	..	..	1	2	3	4	5
(ii)	..	..	1	2	62	30	5
(iii)	..	..	-2.70	-2.07	- .48	+ .89	+2.10
(iv)	..	..	3	9	25	39	51
Item 15—							
(i)	..	..	1	2	3	4	5
(ii)	..	..	5	10	65	12	8
(iii)	..	..	-2.10	-1.30	- .07	+1.09	+1.86
(iv)	..	..	9	17	29	41	49
Item 16—							
(i)	..	..	1	2	3	4	5
(ii)	..	..	10	12	44	26	8
(iii)	..	..	-1.76	-1.00	- .16	+ .84	+1.86
(iv)	..	..	12	20	28	38	49
Item 17—							
(i)	..	..	1	2	3	4	5
(ii)	..	..	4	28	20	37	11
(iii)	..	..	-2.16	- .97	- .20	+ .57	+1.71
(iv)	..	..	8	20	28	36	47
Item 18—							
(i)	..	..	1	2	3	4	5
(ii)	..	..	5	19	42	24	10
(iii)	..	..	-2.10	-1.09	- .13	+ .80	+1.76
(iv)	..	..	9	19	29	38	48
Item 19—							
(i)	..	..	1	2	3	4	5
(ii)	..	..	7	25	31	29	8
(iii)	..	..	-1.92	- .89	- .07	+ .79	+1.86
(iv)	..	..	11	21	29	38	49
Item 20—							
(i)	..	..	1	2	3	4	5
(ii)	..	..	8	9	45	24	14
(iii)	..	..	-1.86	-1.16	- .28	+ .66	+1.59
(iv)	..	..	11	18	27	37	46

TABLE III
Arbitrary Weights and σ -Weights

Serial No. of Subject—5.

Serial No. of Subject—48.

Item No.	Alter- native selected.	Arbi- trary weights.	σ - Weights.	Alter- native selected.	Arbi- trary weights.	σ - Weights.
1	..	c	3	d	4	40
2	..	c	3	c	3	28
3	..	c	3	c	3	29
4	..	c	3	c	3	31
5	..	b	2	d	4	38
6	..	c	3	c	3	26
7	..	c	3	b	2	18
8	..	c	3	c	3	24
9	..	c	3	d	4	42
10	..	c	3	c	3	31
11	..	b	2	c	3	27
12	..	b	2	a	1	14
13	..	d	4	c	3	26
14	..	c	3	c	3	25
15	..	c	3	c	3	29
16	..	d	4	c	3	28
17	..	b	2	d	4	36
18	..	d	4	c	3	29
19	..	b	2	c	3	29
20	..	e	5	d	4	37
Total score ..			60	576	62	587

A STUDY OF A SAMPLE OF CALCUTTA LIBRARIANS

S. K. Bagchi

Introduction

Job-satisfaction is an important factor determining personal happiness in the life of an individual. He who is happy on his job is obviously happy with self, with the members of his family, with his neighbours and friends and almost at everything that concerns him, for vocation plays a vital part in his life. A frustrated worker, on the other hand, carries his anxieties and worries, his fears and furies wherever he goes and makes his own life as well as that of others awfully miserable. So, if we want to assess the mental health in a vocational area we shall have to enquire into the degrees of job-satisfaction of the employees concerned.

Purpose

The purpose of the present study was to ascertain the degrees of job-satisfaction of a sample of the library personnel of Calcutta.

Method

The subjects were given a questionnaire in which they were asked to (a) furnish particulars about themselves, (b) mention the vocational aims they had cherished before they entered the library service, (c) indicate the degree of their liking for library service prior to their joining the same, (d) indicate the degree of their present liking for this vocation—on a five-point scale running from -2, through zero, to +2 in both the cases, (e) state whether they would like or not to continue in this service, and (f) to give reasons for their above answer.

Subjects

Sixty library personnel of the city, of whom 37 were males and 23 females, served as subjects of the present study. They were senior librarians, librarians, assistant librarians, senior technical assistants, junior technical assistants, junior reference assistants, senior library assistants, library assistants, and sub-editors of the Indian National Bibliography.

The subjects had an age-range of 24-65 years with an average of 36.61 years.

As regards their qualifications, one of them was a Ph.D., twenty-eight were M.As., twenty-eight graduates (B.A./B.Sc./B.Com.), and two were under-graduates, all having professional training, whereas the remaining one was an under-graduate with no training in the profession. However, he spent many years of his life in actively participating in the national movement for freedom of the country and put in twenty-three years' valuable service in a library which he is now serving as senior library assistant.

Of the subjects eight had training in foreign languages, three in documentation and book presentation, two in social service and adult education, and two in teaching.

The subjects' experience in library service ranged from 3 to 32 years, 13 years being the average.

The number of institutions served by the subjects varied from 1 to 4; the average here was 1.51. Six of them had each served more than two libraries; fifteen had each served two libraries; and thirty-nine one library each.

Findings

A. Only 28 of the subjects stated that they had specific vocational aims before they entered the library service. The vocations cherished by them were as follows. Figures within brackets indicate percentages of the subjects cherishing these vocations: Teaching (15 per cent.), Librarianship (6.66 per cent.), Professorship (5 per cent.), Engineering (5 per cent.) Business (3.33 per cent.), Management (1.66 per cent.), Stenography (1.66 per cent.), Army (1.66 per cent.), Law (1.66 per cent.), Medicine (1.66 per cent.), Chartered/accountancy (1.66 per cent.), Chemistry (1.66 per cent.).

B. As regards liking for this service prior to their acceptance of the same as their vocation, 31.66 per cent stated that they had liked it very much, 45 per cent. stated they had liked it much, 21.66 per cent indicated they had just liked it, 1.66 per cent. reported that they did not like it. None of them expressed complete dislike for this vocation.

C. Regarding their present liking for the vocation, 48.33 per cent. expressed very much liking, 45 per cent. much liking and 3.33 per cent. average liking; 1.66 per cent. expressed dislike and 1.66 per cent. reported complete dislike for library work.

D. 85 per cent. of the subjects stated that they would like to continue in their present service, whereas 15 per cent. would prefer a change.

E. The reasons for continuing in this vocation, as given by the subjects concerned, are given below in order of frequency. The figures within brackets indicate percentages of the subjects mentioning the reasons:

Scope for reading and acquiring knowledge (33.33 per cent.); scope for contact with scholars and learned persons (15 per cent.); healthy, peaceful and congenial environment (13.33 per cent.); love for books (10 per cent.); love for the profession (10 per cent.); interest in public service (8.33 per cent.); respectability of the profession (8.33 per cent.); inability to hazard risks at an advanced age and difficulty in finding another job (8.33 per cent.); educational value of the profession (8.33 per cent.); happy adjustment with the profession (6.66 per cent.); ease in the profession (6.66 per cent.); scope for maintaining honesty (5 per cent.); non-availability of other jobs (6.66 per cent.); prospect of promotion (4.99 per cent.); fair emoluments (4.99 per cent.); familiarity with the vocation (3.33 per cent.); cleanliness of the environment (3.33 per cent.); sentiment for the vocation as career began with it (3.33 per cent.); scope for acquiring knowledge about people and things (3.33 per cent.); increase in the social and cultural status of the profession (3.33 per cent.); desire to utilise the experience gathered (3.33 per cent.); responsibility and importance of the job (1.66 per cent.); pleasure in helping scholars (1.66 per cent.); chance for self-evaluation in the social context (1.66 per cent.); undesirability of changing vocations in present economic conditions of the society (1.66 per cent.); probability of the profession being paying (1.66 per cent.); dislike for change (1.66 per cent.); want of qualifications necessary for any other job (1.66 per cent.); scope for participating in mass education (1.66 per cent.); scope for learning a number of languages (1.66 per cent.); facilities for studying several subjects (1.66 per cent.); love for cultural work (1.66 per cent.); suitability of the profession for women (1.66 per cent.); security in the service (1.66 per cent.); scope for creative activities (1.66 per cent.); desire to utilise the professional qualifications and experience earned (1.66 per cent.).

Subjects

The number of subjects was 41 (age range: 5—40) for the first four test conditions, but it was 32 for the last from which all the three of the age range 5—7 were excluded as it appeared somewhat difficult for them. Besides, four in the age range 8—9 and two of the adult group were not available at the time the experiment was conducted under this condition.

Results

The following Table No. 1 gives the average IMS under different modes of stimulus presentation for the whole group, as also separately for the three age groups into which the subjects were divided.

TABLE No. 1
Average Immediate Memory Spans

Age groups.	Modes of Stimulus Presentation										
	A		V		VMA		A ₂ M ₂ V		A ₂ M ₂ V ₂		
	M	S.D.	M	S.D.	M	S.D.	M	S.D.	M	S.D.	
A. 5-10 (N=13)	..	6.1	1.02	5.5	1.43	6.1	1.42	5.5	1.18	7.4	1.40
B. 11-16 (N=15)	..	6.9	.88	7.1	.64	8.5	1.00	7.2	1.11	8.3	1.33
C. 17-40 (N=13)	..	7.2	1.02	7.2	1.08	8.5	1.01	7.8	1.33	8.8	1.75
Whole group (N=41)	..	6.7	1.00	6.6	1.25	7.7	1.57	6.8	1.70	8.6	1.06

This Table shows two trends, viz., (i) a corresponding increase in the length of the IMS with advance in age, which is more prominent between the first two age groups, and between the first and the third, than between the third and the second, suggesting stability of the IMS round about the age of sixteen (also vide Table No. 2 below); and (ii) a clear advantage of the third (VMA) and the last ($A_2M_2V_2$) modes over the others.

TABLE No. 2
Differences in average IMS between Groups

Age groups compared.		Modes of Stimulus Presentation										
		A		V		VMA		A ₂ M ₂ V		A ₂ M ₂ V ₂		
		t	s.l.	t	s.l.	t	s.l.	t	s.l.	t	s.l.	
A/B	..	..	2.16	0.05	3.55	0.01	4.89	0.01	3.69	0.01	1.66	..
A/C	..	..	2.75	0.05	3.26	0.01	4.70	0.01	6.34	0.01	2.18	0.05
B/C	..	..	.81	..	.27	..	..	..	1.22	..	.81	..

s.l.—Level of significance. Blanks indicate insignificant difference.

The following Table No. 3 shows the significance levels of differences between different modes of stimulus presentation. Other differences, not shown in this Table, turn out to be insignificant.

TABLE No. 3

Significance levels of differences between different modes of Stimulus Presentation.

Group.		Modes compared.		t	Level of signifi- cance.	
Whole group	..	..	VMA>A ₂ M ₂ V	..	4.31	0.01
			VMA >A	..	5.37	0.01
			VMA >V	..	6.08	0.01
			A ₂ M ₂ V ₂ >A	..	1.83	0.05
			A ₂ M ₂ V ₂ >V	..	1.68	0.05
Age group 5-10	..	..	A>A ₂ M ₂ V ₂	..	2.71	0.01
			VMA >V	..	7.24	0.01
			VMA >A ₂ M ₂ V	..	4.80	0.01
			A ₂ M ₂ V ₂ >V	..	2.66	0.01
			A ₂ M ₂ V ₂ >VMA	..	1.87	0.01
			A ₂ M ₂ V ₂ >A ₂ M ₂ V	..	3.08	0.01
			A ₂ M ₂ V ₂ >A	..	2.29	0.05
			A >V	..	3.07	0.01
Age group 11-16	..	..	VMA >A	..	10.32	0.01
			VMA >V	..	7.28	0.01
			VMA >A ₂ M ₂ V	..	3.92	0.01
			A ₂ M ₂ V ₂ >A	..	3.36	0.01
			A ₂ M ₂ V ₂ >V	..	3.13	0.01
			A ₂ M ₂ V ₂ >A ₂ M ₂ V	..	2.42	0.01
Age group 17-40	..	..	VMA >A	..	4.21	0.01
			VMA >V	..	3.46	0.01
			A ₂ M ₂ V ₂ >A	..	2.82	0.01
			A ₂ M ₂ V ₂ >V	..	2.78	0.01

It will be seen from this Table that A turns out twice, V in no case, VMA ten times, A₂M₂V not at all, and A₂M₂V₂ eleven times more advantageous a mode of stimulus presentation in eliciting a longer span of immediate memory.

F. The reasons, quoted by the subjects concerned as underlying their preference for a change, are as follows. They are given in order of frequency:

Limited prospect and scope for promotion (6.66 per cent.); preference for teaching (6.66 per cent.); availability of a post of teacher which is more paying (4.99 per cent.); scope for longer service in teaching (3.33 per cent.); monotony in the work (3.33 per cent.); want of scope for creative work (1.66 per cent.); imparity between qualifications and remuneration (1.66 per cent.); troublesome colleagues (1.66 per cent.); liability to give explanations for faults of subordinate staff (1.66 per cent.).

Conclusion

26.66 per cent. of the subjects reported that they had cherished academic vocations, viz., teaching, professorship and librarianship, before they entered the library service. 76.63 per cent. of the subjects gave academic reasons in support of their desire to continue in the service. 96.66 per cent. of the subjects expressed liking for the service. All this indicates that persons with academic interests are likely to be better adjusted in this vocational area.

Majority of our subjects had liking for library work before their entry into the library service. The degree of this liking increased in most cases when they actually participated in library work. This shows that if rightly interested persons are recruited for the work it will offer them great satisfaction.

The very fact that 85 per cent. of the subjects did not like to change over to any other vocation (except a negligible fraction that quoted non-availability of any other job as the reason) indicates that our subjects are quite happy on their job. This is consistent with the findings of another study reported by the author in the second issue of this bulletin. An analysis of the reasons given by those few who want a change suggests that they also would have liked to continue in this service had they been provided with greater facilities for gratifying their academic interests and given higher emoluments.

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AN EXPERIMENT ON THE BEARING OF MODE OF STIMULUS PRESENTATION ON IMMEDIATE MEMORY SPAN

R. C. Das

The point of study in this experiment was to determine if the immediate memory span of a subject changed, significantly or insignificantly, according to changes in the mode of presentation of the stimuli, which were lists of digits of varying lengths in this case.

The stimuli were presented to each of the subjects ($N=41$, age range: 5-40) in the following five manners. In regard to each manner of stimulus presentation separate but comparable lists of digits were used. The subjects were tested individually.

Modes of Stimulus Presentation

1. The list was read out by the experimenter with appropriate pauses. The subject heard the list and then reproduced it. Thus the mode of stimulus presentation was auditory (A).

2. The stimulus was exhibited to the subject for three to five seconds (according to the length of the list). The subject was then required to reproduce the digits in order. The mode of stimulus presentation was, thus, visual (V).

3. The list was exhibited to the subject and he was asked to read out the same loudly. Immediately after this he was required to reproduce the digits in their given order. Here the mode of stimulus presentation was visual-motor-auditory (VMA), for the subject saw (visual), uttered (motor), and heard (auditory) the digits presented to him.

4. Each digit in the list was read out by the experimenter with appropriate pauses and immediately on hearing a digit the subject simultaneously wrote it down and read it aloud. When all the digits in a list were thus presented the subject was required to reproduce the list. The mode of stimulus presentation was, thus, auditory twice—motor twice—visual once ($A_2M_2V_1$), for the subject heard (auditory), wrote (motor), saw (visual), uttered (motor) and again heard (auditory) the stimulus that was presented to him.

5. Each digit in the list was read out by the experimenter with appropriate pauses and the subject wrote it down without reading it aloud. When the entire list was thus written out by the subject he read aloud the complete list. Immediately after this he was required to reproduce the list from memory. The mode of stimulus presentation was, thus, auditory twice—visual twice—motor twice ($A_2M_2V_2$), for the subject heard (auditory) a digit, wrote it down (motor), saw (visual) the digit, saw (visual) the whole list, read it out (motor) and heard (auditory) the same as he himself read it aloud.

Determination of the IMS

In determining the immediate memory span (IMS) of a subject, the instructions given by Woodworth (p. 7) were strictly followed. Suppose a subject reproduced all the lists correctly up to and including 6 digits; he was then credited with 6 as a basal value. If above that value he succeeded twice with a 7-digit list, not at all with 8, once with 9, and no further, then his total score was 6 plus $3/3$, i.e., 7. Half the step interval, i.e., 0.5, was added to the score in order to bring this computation into line with the regular procedure.

Discussion

The above results indicate that, with only one exception (A_2M_2V), larger the number of sensory and motor activities involved in receiving the stimulus longer is the immediate memory span. One of the possible reasons for failure of the fourth test condition, viz., A_2M_2V , seems to be the fact that the subject was receiving only a piece meal view (not a gestalt) of the list of digits, adversely affecting his concentration on the whole. Of the two single sensory presentations, viz., visual and auditory, the latter appears to be more effective than the former for the youngest age group.

Conclusion

The results of the present experiment thus prove that the mode of stimulus presentation has a significant bearing on the immediate memory span of the same individual, which varies considerably along with variations in the mode of stimulus presentation. Another important indication of this study is that in helping a child to learn a thing the learning situation should be so manipulated that he can perform as many relevant sensory and motor activities as possible.

References

- Woodworth, R. S.—Experimental Psychology, Methuen & Co. Ltd., London, 1950.

ABSTRACTS OF PAPERS

In the previous Issue of this Bulletin (No. 2, July, 1971) abstracts of some of the papers contributed by the members of the Staff of the Bureau to various magazines, journals, and bulletins were reported. Abstracts of additional papers by them are given below. Serial numbers of these abstracts will indicate the number of papers of the authors concerned reported in the earlier issue.

Bagchi, S. K.

1. "A Survey of Library Services in West Bengal"—Bulletin of the Bureau of Educational and Psychological Research, Calcutta, No. 2, July, 1971.

In this paper the author reports the findings of a detailed analysis of the facts and figures collected by him from 46 library personnel of various categories representing their institutions in the Silver Jubilee Session of the Bengal Library Association held at Purulia in 1971. The analysis includes information relating to staff, pay-scales, location and type of the institutions, accommodation, stock, serviceability of the institutions, and financial aids and grants enjoyed by them. The paper also gives an account of the various difficulties faced by the library staff and of the remedial measures recommended by the latter. In his concluding remarks the author writes, "All this holds out a picture of great promise for library services in this State."

Banerjee, T.

2. "Creativity and Education"—Bulletin of the Bureau of Educational and Psychological Research, Calcutta, No. 2, July, 1971.

In recent years it has been frequently held that there is a separate aspect of intellectual functioning not sampled by traditional intelligence tests. This separate aspect is defined by tests which elicit a divergent type of thinking and is usually labelled as creativity. Creativity is not a uniform or unitary commodity. Amongst the different categories of creative thinking—fluency, flexibility, elaboration may be mentioned. In a large number of studies creativity is reported to have low positive correlation with intelligence and in most cases the correlations between creativity and achievement are above .30 after eliminating the effect of intelligence. Much attention is to be paid to examine the psychological climate, teacher personality, teaching methodology, student attitude and student creativity to promote creative development in our schools and colleges.

Basu, H. C.

3. "Role of Educational and Vocational Guidance Officer in planning future college education of students"—Bulletin of the Bureau of Educational and Psychological Research, Calcutta, No. 2, July, 1971.

Philosophers and educationists are trying to ascertain what type of students should join Universities and Colleges for higher education after finishing High School education for successful completion of College education.

The writer has shown how a good Educational and Vocational Guidance Programme can help us to solve such a difficult problem. It has been suggested that some rules and procedures are to be introduced in all the Universities and Colleges when admitting new entrants. College authorities should try to determine the assets and liabilities of prospective entrants while considering them for selection.

At the same time all applicants should be made aware of the following relevant information about the Colleges beforehand:

- (1) The courses offered in the particular College.
- (2) Entrance requirements of the College.
- (3) Financial implications.
- (4) Other Admission rules of the College.

A school counsellor should prepare a "Student College Evaluation Form" and get those forms duly filled up by his students and present these to College authorities for their information and guidance.

A tentative model of the "Student College Evaluation Form" has also been suggested.

Chakraborty, Tarubala Devi

3. "The survey of improvement shown by the adolescents (Anxiety Neurotic Group) after they had attended the therapeutic sessions at the A.G.C. of the Bureau"—Bulletin of Bureau of Educational and Psychological Research, Calcutta, No. 2, July, 1971

The purpose of the study was to determine the degree of improvement shown by the adolescents by attending the A.G.C. session of the Bureau. Analysis of the findings showed that anxiety neuroses in all the cases had their roots in deprivation of social acceptance. By attending the A.G.C. session for more than 12 months, 50 per cent. of the total group showed some specific improvement in some traits such as spontaneous attention, creative and independent thinking, personality, study habit, relationship with people, etc. The author concludes that improved peer relationship, sympathetic and objective attention and care of the A.G.C. workers helped the children to overcome their anxiety neurotic state.

Chatterjee, Geeta

5. "Scholarships, stipends and other Grants for different stages of Education in West Bengal"—Monograph No. X, Bureau of Educational and Psychological Research, 1961

This Monograph was perhaps the first of its kind ever attempted in West Bengal, where the information about different awards at different stages of education were incorporated.

The data contained in it had been compiled during the period from March, 1960 to July, 1960.

The grants in different stages, viz., Primary, Secondary, Post-Secondary, Post-Intermediate, Post-Graduate; research scholarships and special scholarships at different stages had been shown. The details of the scholarships and stipends allotted to different institutions were also furnished.

6. "Institutional courses and Training Facilities in West Bengal after Higher Secondary Examination"—Monograph XI, Bureau of Educational and Psychological Research, 1964

Diversification of courses at the secondary stage has offered great opportunities to the pupils of our country.

This monograph tried to present such information to pupils, parents and guardians as seemed to be helpful in making decisions in regard to choice of courses and careers after the Higher Secondary Examination.

7. "A Handbook of information on Apprenticeship Training in West Bengal"—Monograph XVII, Bureau of Educational and Psychological Research, 1969.

This Handbook includes only those apprenticeship training courses which are available at the Post-School Final or Post-Higher Secondary stages. Information regarding the names of the establishments, names of the apprenticeships and intake capacity of the apprenticeship training course were provided in this publication.

8. "A study on Agricultural Education at the Higher Secondary stage in West Bengal"—Bulletin of the Bureau of Educational and Psychological Research, Calcutta, No. 2, July, 1971.

The study highlights some of the important issues concerning selection of pupils for the agricultural course in Higher Secondary schools. The data obtained on different aspects of the state of agricultural education in West Bengal at secondary level may help guidance workers and counsellors in devising scientific policies for selecting right pupils for this course.

Chatterjee, K. K.

3. "Need for introducing oral examination as a part of pupil evaluation in School"—Bulletin of the Bureau of Educational and Psychological Research, Calcutta, No. 2, July, 1971.

The introduction of oral examination as one of the techniques of school evaluation programme has been advocated at all levels of school education "in determining how well an individual pupil has integrated his knowledge, can apply it to various situations and sees its implications". Further it "can be used with an individual pupil in probing his reasons for having responded as he did to certain questions on written examinations in an attempt to determine the causes of errors. In this sense, it is a diagnostic tool." As a technique of evaluation, the oral examination contains other additional features as it provides the examiner with an opportunity to meet the examinee face to face to observe his reactions and personality traits as revealed in testing situations. The author suggests experimentation with the technique in determining its efficacy in assessing pupil's achievement.

Das, R. C.

16. "The Pen-Picture Method of Personality Exploration: Findings of Three Simple Preliminary Validation Studies"—Bulletin of the Bureau of Educational and Psychological Research, Calcutta, No. 2, July, 1971.

The paper, which starts with a discussion about the part played by introjection in personality formation, reports the findings of three preliminary studies on the workability of an introjective method of personality assessment (viz., the Pen-Picture Method) proposed earlier by the author at the 53rd session of the Indian Science Congress Association in 1966.

The method requires the subject to draw short pen-pictures of persons admired by him. It is supposed that most of the personality traits betrayed by these pen pictures would have been introjected by the subject himself.

The method was judged against the criteria of ratings of the subjects by the hostel superintendents where the former were resident boarders (in Study No. 1) and that by peers (in Studies No. 2 & 3), and also against self-ratings (in Study No. 3). Findings were encouraging.

17. "The Child is Watching You"—Vocational Guidance to Young Persons (V G Y P), December, 1971.

This paper reports the extents of influence of teachers, professors, friends, relatives, acquaintances, and others upon the subjects on the basis of an analysis of responses of 102 persons of whom 48 were adults and 54 adolescents. The influence of relatives appeared to be the most significant. That of some other agencies, however, also turned out to be quite considerable.

Das Gupta, Bandana

3. "Problems faced by the practising Career masters in our schools", Bulletin of the Bureau of Educational and Psychological Research, Calcutta, No. 2, July 1971.

The present study aims at an objective ascertainment of the views of practising career masters on the School Guidance Programme and attempts an analysis of the problems reportedly faced by them in the actual working situation.

The sample consisted of 80 practising career masters—67 men and 13 women (age range 26-61) coming from schools, situated in ten districts of West Bengal. A questionnaire, consisting of 32 statements, was administered to the career masters.

The analysis of the data throws up a number of vital problems, confronting our career masters, in implementing the important School Guidance Programme.

Datta, Shila

2. "An Examination of the Selection Procedure in a Junior Basic Training College", Bulletin of the Bureau of Educational and Psychological Research, Calcutta, No. 2, July, 1971.

The efficacy of the Selection Procedure in a Junior Basic Training College was studied with reference to its different aspects and the relationship between the assessment of the teacher trainees during the training period and the appraisal of these trainees by the selectors, prior to their admission to the course, was ascertained.

Performance in a theoretical test and special aptitudes as ascertained at the time of selection showed significant correlation with performance during training.

Some suggestions for improvement on the procedure were also offered.

Mukerji, Maya

13. "Group Psychotherapy in the Adolescent Guidance Centre—A case of borderline schizophrenia", Monograph of the Bureau of Educational and Psychological Research, Calcutta, XV, 1968.

This paper depicts the case of a schizophrenic boy who was much below average in intelligence at the time of referral to the A G C. As his difficulties cleared as a result of therapeutic efforts of this Centre, his intelligence test scores showed significant progressive changes and came within the "average range". This is a stimulating finding in favour of motivational research and non-intellective factors of intelligence. A gradual diminution of schizophrenic symptoms by means of an exclusively psychological treatment is another noticeable fact that emerged from the research data.

14. "Ten Group Therapeutic Sessions in an Indian Mental Hospital", *Child Psychiatry Quarterly*, Vol. Nos. 3 & 4, 1971.

A short group therapeutic project was experimentally undertaken by the author in a leading mental hospital of Calcutta to test the efficacy of group therapy with the hospitalized mental patients. The group consisted of nine female psychotic patients (age-range 18-32 years). The therapeutic sessions stretched over five weeks in twice-a-week group meetings.

The running session reports depict how the fragmented egos of the patients were gradually re-constructed and strengthened to cope with respective ego-loads and reality pressures. As the coping behaviour improved the patient felt less and less pressurized and this change could be deciphered in the therapy session reports. It seems that group therapy has excellent prospects for mental patients as it seeks to provide with more adequate possibilities of object relations through a re-organisation of the patients' inner world.

15. "Some of Technical thoughts on the Dissent of Youth", *Bulletin of the Bureau of Educational and Psychological Research*, Calcutta, 1971, No. 2.

The dissent of youth during the sixties expressed itself into mainly three kinds of socio-cultural upheaval-Hippism, Hare Krishna cult or ISKCONISM and extremism of the radical youth. The first two of these flowered in the United States and the last one reached a new pitch of intensity in West Bengal. All these youth dissenters, though taking recourse to different varieties of expressive behaviour, showed, according to the author, a similar underlying psychodynamics—"all are challenging, negating and protesting against the existing social orders of their country, alienating from their traditional ideologies and cultural moorings."

Theories of aggression by the UNESCO experts and of "psycho-social moratorium" by Erikson have been examined in this context. Ego-ambiguity and rootlessness are ascribed by the author to the increase of negative self-concepts among the young ones thereby generating more and more dissenting behaviour.

Sen Gupta, Gita

2. "Analysis of factors contributing to high maladjustment in adolescents of different intellectual levels as studied at the Adolescent Guidance Centre" *Bulletin of the Bureau of Educational and Psychological Research*, Calcutta, No. 2, July, 1971.

The author in the present study tried to ascertain inter-group differences of intellectually "superior", "average" and "below-average" groups of adolescents with respect to their total maladjustment scores, neurotic symptoms and deviation age.

Analysis of the findings shows that not only the feeble-minded and mentally retarded (i.e., "below average" group in the present study) but also the "average" and even "superior" groups suffer from inadequacy of social adjustment. The superior adolescents have comparatively lesser adjustment problems although they show more neurotic symptoms.

3. "How to help the educationally retarded child?", *Vocational Guidance to Young Persons (V.G.Y.P.)*, August, 1971.

Educational retardation is causing a grave concern to the present educationalists and psychologists. Educationally retarded children may not always be mentally deficient. While handling them the teacher should be very cautious

and alert to explore the causes of retardation and to suggest some remedial measures.

Some of the common causes of educational retardation have been discussed.

Sinha, Bina

3. "Assessment of Personality by the Rogers Personal Adjustment Inventory (Bengali Adaptation)", Monograph of the Bureau of Educational and Psychological Research, Calcutta, No. XVIII, 1969.

The Rogers Test of Personal Adjustmet was administered to 160 maladjusted boys and girls referred to the Adolescent Guidance Centre of this the Bureau. The age-range of the sample was from 9 to 19 years. The data were analysed and statistically treated. The means with their variabilities were calculated. The 't' test was calculated to evaluate the significance of mean-differences and also the 'f' test for variability-differences in regard to the two sub-samples (i.e. one of the age group 9 to 13 years; and the other of 14 to 19 years). In both the sub-samples significant relationship between Social Maladjustment and Day-dreaming scores could be noted (at 01 level).

Moreover, the inventory showed some promise to be used effectively to locate the 'Personal adjustment' trends of maladjusted children of the age-group 9 to 19 years.

4. "Some factors having bearing on deviant behaviour", Bulletin of the Bureau of Educational and Psychological Research, Calcutta, No. 2, July, 1971.

The purpose of the study was to examine the aspects having significant bearing on deviant behaviour. Analysis showed that factors like parental identification, psychological progression, breast feeding, neurotic symptom, age of parents, assertive and dominating traits of parents, family size and per-capita income had definitely some bearing on deviant type of behaviour. Data were obtained from 10 adolescent boys of the Adolescent Guidance Centre of the Bureau and Spearman's 'Rho' was calculated for the purpose.



